

RADIOLOGICAL INVESTIGATION REPORT

Dayton Canyon Site
West Hills, CA

June 7, 2006
(Revised September 27, 2006)

PREPARED FOR:

Centex Homes
27200 Tourney Road Suite 200
Valencia, CA 91355

PREPARED BY:

Allwest Remediation Inc.
1201 North Barsten Way
Anaheim, CA 92806

INTRODUCTION

The Centex Sterling Homes Site is located in West Hills, California, just west of the intersection of Roscoe Blvd and Valley Circle in an area known as Dayton Canyon. The Sterling residential development site encompasses approximately 100 acres of undeveloped land. The proposed Sterling Homes site is located approximately 0.5 miles directly east of the eastern boundary of the Rocketdyne/Boeing facility test site, also known as the Santa Susana Field Laboratory (SSFL) in Ventura County, California, as shown in Figure 1. The Rocketdyne/Boeing Facility has been used since 1948 for the research, development and testing of liquid-propellant rocket engines and associated components. The facility was also used by the Department of Energy for nuclear energy research and development, and operated several small scale nuclear reactors onsite.

Due to the proximity of the Sterling Site to the SSFL, a radiological survey was planned as part of the Preliminary Endangerment Assessment Workplan, to evaluate the radiological conditions at the Sterling Homes site. Allwest Remediation performed a radiological survey, and collect samples at a rate of approximately 10 percent of the grids monitored, as described in the workplan approved by DTSC.

RADIOLOGICAL INVESTIGATION

The radiological survey was conducted using a Geiger-Mueller survey instrument (Victoreen Model 190 and Pancake Probe Model 110D). During the survey, the highest and lowest exposure rate readings were recorded for each of the 100 foot by 100 foot grid areas shown in Figure 2. The radiological survey was conducted to determine if any of the grid areas were statistically different, prior to conducting soil sampling for radiological analysis. The results of the radiological survey are provided in Table 1. The radiological survey and soil sampling for radiological laboratory analysis were performed as indicated in the workplan.

Based on the results to the radiological survey, 41 samples were collected for radiological analysis. These samples were collected from the areas shown in Figure 2. The samples were analyzed by FGL Laboratories, located in Santa Paula, California. The samples were analyzed for the naturally occurring radionuclides, Actinium-228, Bismuth-212, Bismuth-214, Lead-212, Potassium-41, and Gross Alpha and Beta radiation. The samples were also analyzed for Cesium-137, a man made isotope associated with nuclear research. The results of the analyses are summarized in Table 2. Copies of the laboratory reports are provided in Appendix A.

Five of the samples discussed above were submitted to Paragon Laboratories (Fort Collins, Colorado) and 10 of the samples to SC & A Laboratories (Montgomery, Alabama) for additional analysis for Strontium-90 and Plutonium-238, 239 and 240. The results of these analyses are summarized in Table 3. Copies of the laboratory reports are provided in Appendix A.

In addition to the data generated above, information on background radiation studies conducted at other properties around the SSFL was also obtained for comparative purposes.

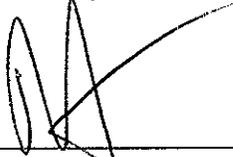
DATA EVALUATION

To evaluate the results of the radiological investigation, the data generated above was provided to Cabrera Services (Las Vegas, Nevada) for evaluation. The results of their evaluation are provided in Attachment 1.

CONCLUSIONS

The results of the radiological investigations and evaluations do not indicate any radionuclide concentrations above the referenced background values. DTSC performed a review of the June 7, 2006 *Radiological Investigation Report*. Based on their evaluation of the data, DTSC recommended that additional radiological samples be collected and analyzed, from areas which exceed the upper bound 98th percentile of the data. The original sample locations exceeding the 98th percentile upper bound limit should be re-sampled and four additional step out samples collected and analyzed.

Sincerely,



Richard Scott
Operations Manager

CC: John Fitzpatrick (Centex Homes)

ATTACHMENTS:

FIGURE 1 – SITE VICINITY MAP

FIGURE 2 – RADIOLOGICAL SAMPLING SUMMARY RESULTS
AND BACKGROUND COMPARISON

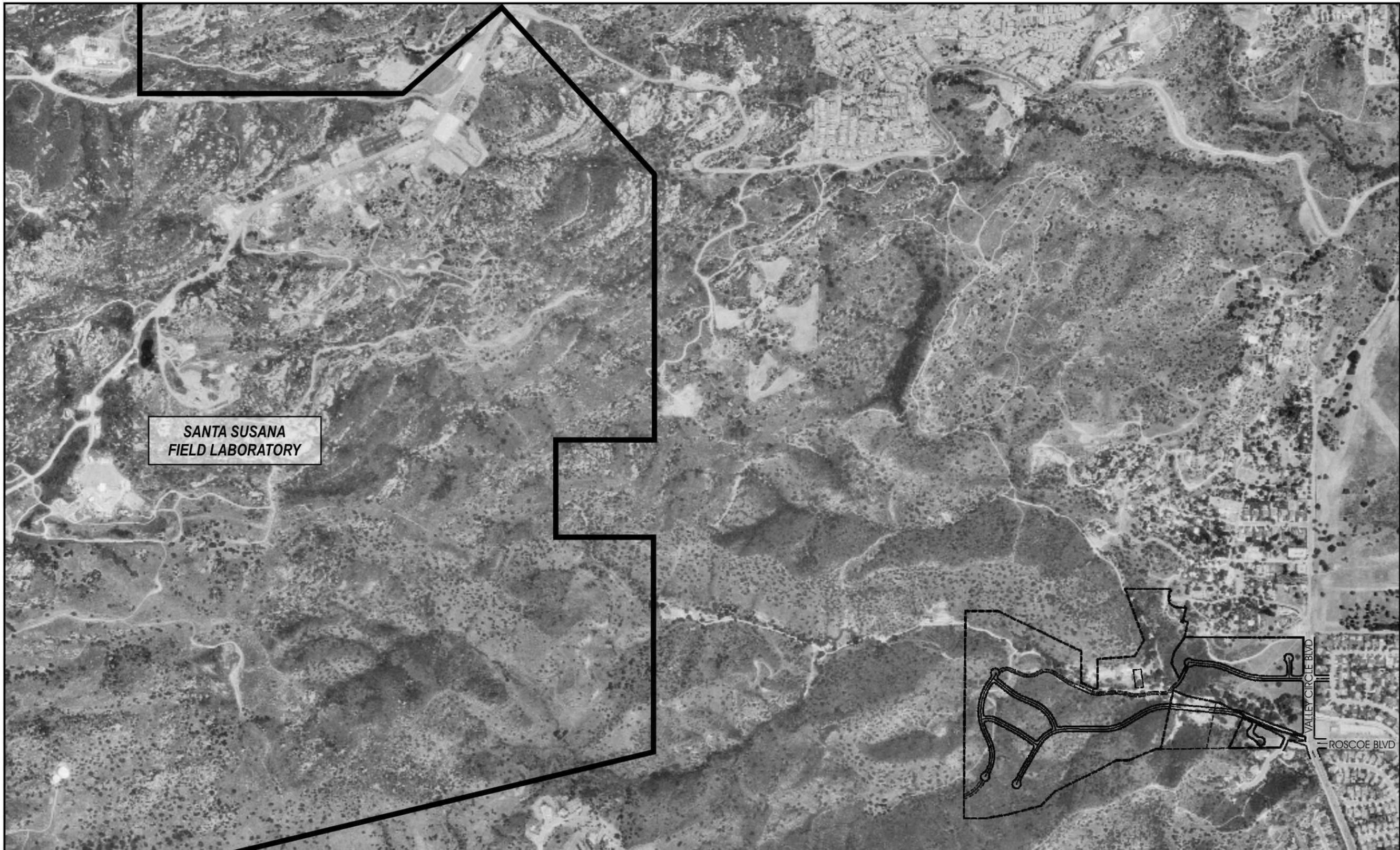
TABLE 1 – SUMMARY OF RADIOLOGICAL SURVEY

TABLE 2 – RADIOMETRIC RESULTS FOR SOIL SAMPLES

TABLE 3 – SUMMARY OF LABORATORY ANALYSIS FOR SR-90, PU-238, PU-239, PU-240

ATTACHMENT 1 – CABRERA SERVICES REPORT

APPENDIX "A" – RADIOLOGICAL LABORATORY REPORTS



SANTA SUSANA
FIELD LABORATORY

VALLEY CIRCLE BLVD
ROSCOE BLVD



LEGEND

	SANTA SUSANA FIELD LABORATORY		PROJECT LAYOUT
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SITE VICINITY MAP
STERLING HOMES
WEST HILLS, CA

ALLWEST REMEDIATION

JOB NO. 05 8520	DATE: JUNE 2006	FIGURE NO. 1
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BARANDEIS BARDIN

NUCLIDE	MAXIMUM	AVERAGE
Cs-137	0.46	0.14
Sr-90	0.13	0.08
Pu-239/240	0.07	0.006

STERLING SITE

NUCLIDE	MAXIMUM	AVERAGE
Cs-137	0.37	0.11
Sr-90	0.82	0.15
Pu-239/240	0.03	0.0092

RUNKLE CYN

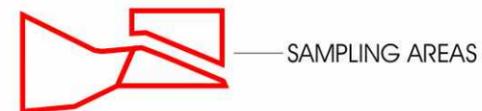
NUCLIDE	MAXIMUM	AVERAGE
Cs-137	0.3	0.1
Sr-90	12	1.4
Pu-239/240	-	-

U.S. AVERAGES

NUCLIDE	MAXIMUM	AVERAGE
Cs-137	3.5	0.7
Sr-90	4	0.7
Pu-239/240	0.04	0.025

LEGEND

-  100'x100' SAMPLE GRID AREA MONITORED
-  GRID NOT MONITORED AREA NOT ACCESSIBLE
-  SAMPLE COLLECTED



RADIOLOGICAL SAMPLING SUMMARY RESULTS AND BACKGROUND COMPARISON

STERLING HOMES
WEST HILLS, CA

ALLWEST REMEDIATION

JOB NO. 05 8520 DATE: JUNE 2006 FIGURE NO. 2

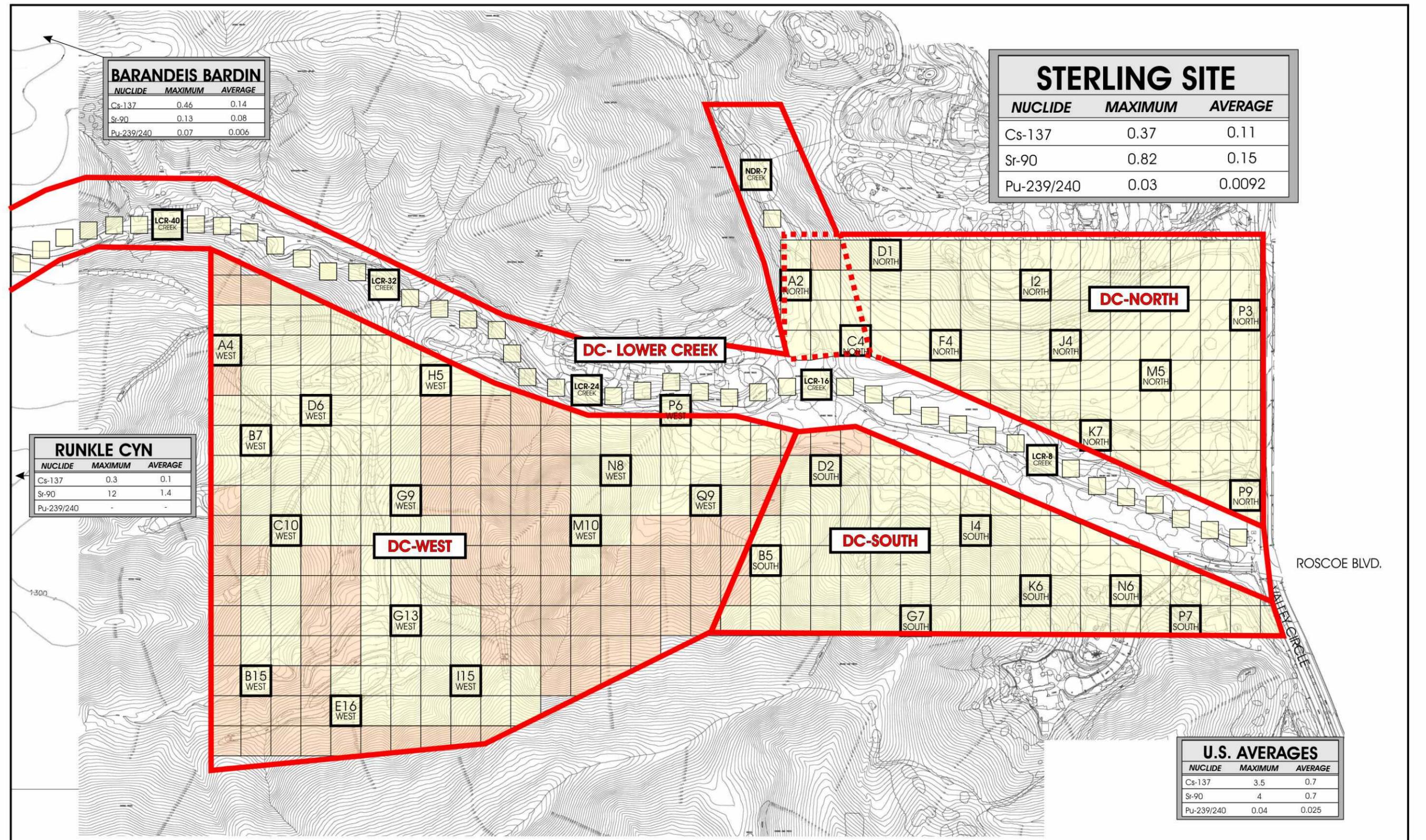


TABLE ONE
SUMMARY OF RADIOLOGICAL SURVEY - DC-NORTH

LOCATION	LOW	HIGH	AVERAGE
	microrems/hour		
A1	9.5	27.0	18.3
A2	7.5	25.4	16.5
A3	10.0	21.9	16.0
A4	9.0	24.2	16.6
B2	1.8	12.2	7.0
B3	3.1	10.2	6.7
B4	11.1	20.8	16.0
C1	1.8	20.7	11.3
C2	7.8	17.4	12.6
C3	4.4	20.2	12.3
C4	9.9	25.7	17.8
D1	4.4	20.4	12.4
D2	12.1	19.4	15.8
D3	12.3	22.9	17.6
D4	5.8	22.8	14.3
E1	5.9	17.5	11.7
E2	9.2	18.8	14.0
E3	9.2	25.4	17.3
E4	8.2	15.9	12.1
F1	3.8	12.8	8.3
F2	8.1	21.9	15.0
F3	9.3	19.1	14.2
F4	15.6	24.9	20.3
G1	11.3	26.6	19.0
G2	6.8	21.6	14.2
G3	10.2	19.3	14.8
G4	10.8	24.4	17.6
H1	7.1	22.6	14.9
H2	11.4	19.3	15.4
H3	10.2	24.8	17.5
H4	12.9	25.4	19.2
H5	11.9	24.3	18.1
H6	15.1	28.2	21.7
I1	3.1	18.0	10.6
I2	11.0	27.5	19.3
I3	14.2	26.3	20.3
I4	5.4	16.7	11.1
I5	16.5	24.0	20.3
I6	10.3	22.2	16.3

NOTE: Measurements recorded with Victoreen Model 190 Survey and Count Reader w/11D Probe

TABLE ONE
SUMMARY OF RADIOLOGICAL SURVEY - DC-NORTH

LOCATION	LOW	HIGH	AVERAGE
	microrems/hour		
J1	10.2	18.0	14.1
J2	8.4	28.3	18.4
J3	10.5	24.8	17.7
J4	7.9	16.0	12.0
J5	9.5	25.8	17.7
J6	9.8	22.6	16.2
J7	15.8	26.5	21.2
K1	6.5	16.7	11.6
K2	10.2	24.6	17.4
K3	11.5	17.2	14.4
K4	9.0	25.4	17.2
K5	7.1	19.3	13.2
K6	6.0	21.1	13.6
K7	11.7	26.3	19.0
L1	14.7	19.3	17.0
L2	12.7	21.4	17.1
L3	14.7	27.5	21.1
L4	7.2	18.6	12.9
L5	8.0	21.8	14.9
L6	11.2	23.0	17.1
L7	6.1	17.1	11.6
M1	15.5	24.0	19.8
M2	10.0	24.9	17.5
M3	12.4	22.3	17.4
M4	14.8	25.6	20.2
M5	8.5	17.5	13.0
M6	7.1	18.1	12.6
M7	11.2	19.1	15.2
M8	7.5	23.3	15.4
N1	8.5	26.7	17.6
N2	15.8	27.1	21.5
N3	11.7	22.3	17.0
N4	12.3	21.2	16.8
N5	7.5	17.5	12.5
N6	10.4	22.1	16.3
N7	7.6	19.9	13.8
N8	6.0	20.9	13.5
O1	11.3	23.4	17.4
O2	11.2	24.1	17.7

NOTE: Measurements recorded with Victoreen Model 190 Survey and Count Reader w/11D Probe

TABLE ONE
SUMMARY OF RADIOLOGICAL SURVEY - DC-NORTH

LOCATION	LOW	HIGH	AVERAGE
	microrems/hour		
O3	14.3	22.5	18.4
O4	9.9	21.3	15.6
O5	11.7	18.2	15.0
O6	6.1	18.8	12.5
O7	10.8	20.7	15.8
O8	8.5	22.5	15.5
P1	18.5	25.0	21.8
P2	12.4	18.7	15.6
P3	6.7	19.8	13.3
P4	7.9	17.6	12.8
P5	11.1	25.2	18.2
P6	11.6	22.7	17.2
P7	9.1	16.9	13.0
P8	5.3	21.4	13.4
P9	8.6	14.4	11.5

NOTE: Measurements recorded with Victoreen Model 190 Survey and Count Reader w/11D Probe

TABLE ONE
SUMMARY OF RADIOLOGICAL SURVEY - DC-WEST

LOCATION	LOW	HIGH	AVERAGE
	microrems/hour		
A3	13.2	25.0	19.1
A4	5.0	26.2	15.6
A6	20.1	25.8	23.0
A7	20.3	26.0	23.2
A8	13.2	25.8	19.5
B3	6.1	25.1	15.6
B4	19.0	25.7	22.4
B5	18.7	23.9	21.3
B6	15.2	23.8	19.5
B7	16.9	21.5	19.2
B8	19.9	24.6	22.3
B9	14.3	28.3	21.3
B10	14.4	28.8	21.6
B12	14.5	28.5	21.5
B13	10.5	26.5	18.5
B14	13.2	19.6	16.4
B15	10.6	21.6	16.1
C3	12.1	23.6	17.9
C4	12.5	18.3	15.4
C5	23.1	27.9	25.5
C6	17.0	24.1	20.6
C7	17.9	28.1	23.0
C8	16.1	27.3	21.7
C9	16.4	27.1	21.8
C10	12.0	25.2	18.6
C11	12.5	18.3	15.4
C12	13.6	28.3	21.0
C13	8.7	28.0	18.4
C14	12.8	29.3	21.1
D3	8.7	20.4	14.6
D4	18.6	27.3	23.0
D5	19.5	27.0	23.3
D6	15.4	25.8	20.6
D7	17.8	23.5	20.7
D8	14.7	25.9	20.3
D9	10.2	28.4	19.3
D10	11.4	25.0	18.2
E3	8.9	24.7	16.8
E4	19.3	28.4	23.9

NOTE: Measurements recorded with Victoreen Model 190 Survey and Count Reader w/11D Probe

TABLE ONE
SUMMARY OF RADIOLOGICAL SURVEY - DC-WEST

LOCATION	LOW	HIGH	AVERAGE
	microrems/hour		
E5	14.5	23.5	19.0
E6	18.7	28.3	23.5
E7	16.8	25.2	21.0
E8	18.3	20.6	19.5
E9	17.9	24.8	21.4
E10	15.2	26.8	21.0
E15	17.7	25.3	21.5
E16	7.0	24.9	16.0
F4	17.9	23.0	20.5
F5	17.0	24.7	20.9
F6	16.3	20.4	18.4
F7	13.1	23.7	18.4
F8	16.8	25.2	21.0
F9	17.1	28.0	22.6
F10	16.3	23.5	19.9
F11	10.2	25.4	17.8
F12	14.6	28.0	21.3
F13	15.5	25.2	20.4
F14	10.8	26.7	18.8
F15	13.8	21.4	17.6
F16	9.5	24.7	17.1
G4	19.4	23.7	21.6
G5	14.9	28.7	21.8
G6	13.4	22.7	18.1
G7	16.4	26.6	21.5
G8	20.3	26.2	23.3
G9	12.3	23.9	18.1
G10	17.8	27.2	22.5
G11	14.7	26.2	20.5
G12	13.1	26.6	19.9
G13	11.7	25.8	18.8
G14	11.7	23.9	17.8
G15	17.6	27.5	22.6
G16	11.4	23.4	17.4
H5	17.4	25.5	21.5
H11	14.3	27.6	21.0
H12	10.1	19.5	14.8
H13	14.8	26.6	20.7
H14	12.4	21.6	17.0

NOTE: Measurements recorded with Victoreen Model 190 Survey and Count Reader w/11D Probe

TABLE ONE
SUMMARY OF RADIOLOGICAL SURVEY - DC-WEST

LOCATION	LOW	HIGH	AVERAGE
	microrems/hour		
H15	13.2	26.4	19.8
H16	14.6	24.4	19.5
I13	10.7	28.1	19.4
I14	15.8	22.0	18.9
I15	19.0	27.8	23.4
I16	6.7	26.5	16.6
J15	20.0	26.8	23.4
J16	10.6	22.7	16.7
M7	11.1	27.7	19.4
M8	15.3	27.8	21.6
M9	8.6	16.8	12.7
M10	16.5	23.3	19.9
M11	14.1	21.5	17.8
N6	10.5	22.8	16.7
N7	16.8	22.7	19.8
N8	11.1	25.3	18.2
N9	6.7	26.2	16.5
N10	12.6	20.5	16.6
O6	9.9	26.3	18.1
O7	10.9	24.2	17.6
O8	9.3	22.0	15.7
O9	13.9	25.3	19.6
P6	4.5	23.1	13.8
P7	10.7	22.9	16.8
P8	13.8	19.7	16.8
Q6	11.9	28.0	20.0
Q7	14.2	23.0	18.6
Q8	15.3	27.8	21.9
Q9	7.4	19.7	13.6
R6	9.3	26.7	18.0
R7	13.5	26.7	20.1
R8	11.7	20.2	16.0
R9	15.7	24.5	20.1
S6	4.6	15.2	9.9
S7	8.7	25.0	16.9

NOTE: Measurements recorded with Victoreen Model 190 Survey and Count Reader w/11D Probe

TABLE ONE
SUMMARY OF RADIOLOGICAL SURVEY - DC-SOUTH

LOCATION	LOW	HIGH	AVERAGE
	microrems/hour		
A7	8.3	19.4	13.9
B4	16.9	25.7	21.3
B5	10.8	23.5	17.2
B6	14.6	20.9	17.8
B7	11.1	21.6	16.4
C2	17.0	23.7	20.4
C3	17.7	25.2	21.5
C4	12.3	17.2	14.8
C5	6.8	13.5	10.2
C6	13.3	19.9	16.6
C7	9.1	16.2	12.7
D2	16.4	22.0	19.2
D3	11.9	19.6	15.8
D4	18.8	24.9	21.9
D5	19.1	23.2	21.2
D6	21.5	23.7	22.6
D7	16.0	21.5	18.8
E2	10.1	23.0	16.6
E3	12.6	26.1	19.4
E4	18.6	26.2	22.4
E5	15.1	25.2	20.2
E6	21.5	24.5	23.0
E7	19.5	23.1	21.3
F2	15.0	19.1	17.1
F3	22.2	24.1	23.2
F4	14.7	22.2	18.5
F5	13.4	19.4	16.4
F6	19.3	24.8	22.1
F7	15.8	22.4	19.1
G2	14.1	20.3	17.2
G3	19.2	21.7	20.5
G4	20.0	23.0	21.5
G5	17.3	25.5	21.4
G6	15.5	25.0	20.3
G7	13.2	19.3	16.3
H3	12.5	25.3	18.9
H4	19.0	21.6	20.3
H5	14.9	27.5	21.2
H6	17.1	25.5	21.3

NOTE: Measurements recorded with Victoreen Model 190 Survey and Count Reader w/110D Probe

TABLE ONE
SUMMARY OF RADIOLOGICAL SURVEY - DC-SOUTH

LOCATION	LOW	HIGH	AVERAGE
	microrems/hour		
H7	18.6	27.0	22.8
I3	20.1	25.0	22.6
I4	21.6	25.6	23.6
I5	14.6	24.0	19.3
J4	16.1	22.5	19.3
J5	20.3	23.3	21.8
J6	14.9	24.7	19.8
K4	17.9	27.5	22.7
K5	10.7	16.5	13.6
K6	20.1	24.9	22.5
K7	16.8	23.4	20.1
L4	22.5	24.6	23.6
L5	22.3	27.6	25.0
L6	14.0	18.9	16.5
L7	23.7	26.3	25.0
M5	7.4	22.9	15.2
M6	18.3	24.7	21.5
M7	15.5	22.5	19.0
N5	7.9	24.7	16.3
N6	17.5	25.1	21.3
N7	12.5	16.8	14.7
O5	11.6	19.5	15.6
O6	16.0	21.5	18.8
O7	13.9	22.6	18.3
P6	11.7	23.3	17.5
P7	13.9	20.4	17.2
Q6	15.3	21.9	18.6
Q7	18.5	25.1	21.8
R7	16.3	24.0	20.2

NOTE: Measurements recorded with Victoreen Model 190 Survey and Count Reader w/110D Probe

TABLE TWO
RADIOMETRIC RESULTS FOR SOIL SAMPLES
 METHOD 901.1/9310 (Results in pCi/g)

Sample I.D.	Sample Date	γ (Ac-228)	γ (Bi-212)	γ (Bi-214)	γ (Cs-137)	γ (Pb-212)	γ (Pb-214)	γ (K-40)	GROSS α	GROSS β
A2-N	10/27/2005	0.561	0.327	0.627	0.00201	0.791	0.705	21.4	16.8	27.6
C4-N	10/27/2005	0.446	0.396	0.937	0.15	1	1.09	19.8	9.39	16.5
D1-N	10/27/2005	0.571	0.496	1.26	0.0424	0.669	1.28	12.6	3.82	2.11
F4-N	10/27/2005	1.3	0.504	0.905	0.134	1.24	0.929	16.8	32.1	43.2
I2-N	10/27/2005	0.887	0.494	0.712	0.26	0.918	0.903	16.2	38.1	29.1
J4-N	10/27/2005	1.15	0.722	1.14	0.093	1.22	1.21	20.6	21.9	19.9
M5-N	10/27/2005	0.833	0.983	NA	0.0434	1.28	1.17	26.5	12.8	17.8
K7-N	10/27/2005	NA	NA	NA	0.0408	1.21	1.04	22.8	7.83	19.6
P3-N	10/27/2005	0.53	NA	0.648	0.05	0.693	0.6	21.3	12.8	18.2
P9-N	10/27/2005	0.887	1.27	1.14	0.128	1.21	1.01	20.7	9.46	20.6
B5-S	10/27/2005	0.867	1.06	1.02	0.167	0.991	NA	13.6	16.8	16
D2-S	10/28/2005	0.442	0.498	0.709	0.031	0.667	0.771	17.4	7.63	16.5
G7-S	10/28/2005	1.31	1.11	1	0.133	1.4	1.17	23.2	17.2	21.6
I4-S	10/27/2005	0.813	0.924	0.961	0.0316	0.857	1.09	17	41.3	49.1
N6-S	10/28/2005	0.939	0.747	1.16	0.055	1.77	1.59	28.1	13.2	26.3
K6-S	10/28/2005	1.16	1.3	0.661	0.0965	1.13	0.625	19.5	16.2	17.5
P7-S	10/28/2005	NA	0.559	1.66	0.0356	1.03	1.68	15	21.9	20.3
A4-W	10/31/2005	1.07	0.46	0.967	0.0552	1.2	0.705	18.5	22.6	28.9
B7-W	10/31/2005	0.859	0.208	0.902	0.215	1.12	0.868	18.3	36.1	38.2
E16-W	10/31/2005	0.862	0.348	0.666	0.0127	0.974	0.816	16.8	12	15.6
B15-W	10/31/2005	1.2	NA	1.1	0.0769	1.08	1.2	15.4	13	10.4
C10-W	10/31/2005	0.79	0.941	0.828	0.0578	0.888	1.03	15.5	38.4	42.1
D6-W	10/31/2005	1.2	NA	1.76	0.217	1.2	1.88	19.5	7.3	14.3
G9-W	10/31/2005	0.921	1.28	1	0.31	1.3	1.27	19.6	11.8	15
G13-W	10/31/2005	1.24	0.899	0.976	0.262	1.18	1.08	20.8	11.5	8.38
H5-W	10/31/2005	NA	0.457	0.756	0.0889	1.22	1.01	18.8	16.6	16.3
I15-W	10/31/2005	1.39	0.569	1.1	0.187	1.39	1.12	21.1	6.95	9.56
M10-W	10/31/2005	0.775	0.771	NA	0.377	1.73	1.56	24	15.9	15
N8-W	10/28/2005	1.48	1.07	1.36	0.378	2.76	1.63	33.7	17.8	17.5
P6-W	10/28/2005	1.22	0.929	1.15	0.0989	1.3	1.26	21.2	15.6	17
R9-W	10/28/2005	0.482	0.346	0.764	0.036	0.924	0.771	14.2	14.2	14.7
Debris P6	10/28/2005	0.714	NA	1.82	0.035	0.803	1.8	13.6	28.4	17.4

NOTE: alpha-numeric string denotes sample location, subsequent letter denotes sampling area

TABLE THREE
**SUMMARY OF LABORATORY ANALYSIS FOR
 SR-90, PU-238, PU-239, PU-240**

SAMPLE ID	STRONTIUM-90		PLUTONIUM				LABORATORY
			PU-238		PU-233/240		
	ACTIVITY p Ci/g	DETECTION LIMIT p Ci/g	ACTIVITY p Ci/g	DETECTION LIMIT p Ci/g	ACTIVITY p Ci/g	DETECTION LIMIT p Ci/g	
F-4-N	0.30	0.21	0.005	0.016	0.006	0.008	P
B-5-S	0.038	0.217	0.002	0.016	0.019	0.009	P
C-10-W	0.043	0.202	0.003	0.009	-0.001	0.017	P
N-8-W	0.35	0.21	0.003	0.019	0.019	0.023	P
M-10-W	0.12	0.21	-0.002	0.020	0.016	0.023	P
A-4-W	0.586	0.778	0.004	0.012	0.006	0.023	SCA
D-6-W	0.192	0.715	0.000	0.012	0.005	0.012	SCA
G-9-W	0.824	0.703	0.000	0.011	0.008	0.011	SCA
P-6-W	-0.586	0.904	0.000	0.010	0.012	0.010	SCA
G-13-W	0.087	0.872	-0.003	0.023	0.026	0.012	SCA
R-9-W	-0.183	0.843	0.000	0.010	0.004	0.010	SCA
I-4-S	0.470	0.782	-0.002	0.020	-0.002	0.020	SCA
N-6-S	-0.256	0.761	0.002	0.021	0.016	0.011	SCA
A-2-N	0.155	0.740	-0.003	0.025	0.002	0.025	SCA
M-5-N	0.06	0.65	0.00	0.01	0.002	0.019	SCA
LCR-40	0.060	0.740	0.002	0.020	0.002	0.010	SCA
LCR-24	0.087	0.650	0.000	0.021	0.002	0.011	SCA
LCR-8	0.150	0.842	0.002	0.023	0.002	0.011	SCA

P=PARAGON LABORATORIES

SCA = S. COHEN AND ASSOCIATES LABORATORY

p Ci/g = PICO CURIES PER GRAM

TECHNICAL MEMORANDUM

Review and Evaluation of

Radiological Survey and Laboratory Results

for the Sterling Project

West Hills, CA

Prepared For:

Allwest Remediation, Inc.
Anaheim, CA

Prepared by:



May 23, 2006

1.0 INTRODUCTION

Cabrera Services, Inc. (CABRERA) has been requested to review and evaluate existing radiological survey and laboratory results from the Sterling Project for Allwest Remediation, Inc. The Sterling Project is located within the community of West Hills, in the incorporated area of the City of Los Angeles, and is approximately one mile east of the Santa Susanna Field Laboratory (SSFL) in Simi Valley (Ventura County), California. The SSFL is a facility that formerly performed work for the Department of Energy.

2.0 DATA REVIEW AND EVALUATION

The review of the radiological survey and laboratory data was performed based on guidance provided by the Environmental Protection Agency (EPA 2000) and the National Institute of Science and Technology (NIST 2006). The data review included developing tables of data and summary statistics along with preparing visual representations of the data.

The data review and evaluation focused on radionuclides associated with activities at the SSFL that could be present in surface soil. The radionuclides of concern for this investigation are cesium-137 (Cs-137), strontium-90 (Sr-90), and plutonium-239 and plutonium-240 (Pu-239/240). Naturally occurring radionuclides were also included as part of the evaluation as a control. Actinium-228 (Ac-228) represents the radionuclides in the thorium decay series, and bismuth-214 (Bi-214) represents the radionuclides in the uranium decay series. A survey of radiation levels was performed for the Sterling project to identify areas of potentially elevated radioactivity. Surface soil samples were collected based on the results of the radiation survey and analyzed in a radiochemistry laboratory for the radionuclides of concern.

Table 1 lists the maximum, minimum, and average concentrations for the radionuclides of concern based on several studies. The results for the Sterling project are included, along with results for two other surveys performed at sites adjacent to the SSFL: the Brandeis-Bardin Institute and Santa Monica Mountains Conservancy survey (B-B Survey, McLaren/Hart 1995) and the Runkle Canyon survey (Miller Brooks 2003, DMA 2005). In addition, four background surveys are also included. The background studies provide information on local distributions of radionuclides (Brandeis-Bardin background study [B-B Bkgd]), radionuclide concentrations across the country (U.S.), and at other sites in California (Lawrence Livermore National Laboratory [LLNL] and the former McClellan Air Force Base [McAFB]).

Graphs were prepared to visually compare the average concentrations and the ranges of concentrations reported in each of the surveys. Figures 1, 2, 3, 4, and 5 show comparisons for Sr-90, Cs-37, Pu-239/240, thorium and uranium series radionuclides, and gross alpha and gross beta radioactivity, respectively. The graphs show that the results of the Sterling project investigation are comparable to background radionuclide concentrations and results from other surveys performed in the areas surrounding the SSFL.

Figure 1 (Sr-90) shows that Runkle Canyon has the widest range of concentrations, followed by the national background. The Brandeis-Bardin survey and background study have low average concentrations combined with narrow ranges of concentrations. In fact, the maximum reported Sr-90 concentration at Brandeis-Bardin is below the detection limit for Sr-90 for the Sterling Project. This indicates that the analytical methods used by the laboratories are different, so comparisons to the Brandeis-Bardin surveys are difficult to interpret.

Table 1 Summary Statistics

Survey Description	Maximum (pCi/g)	Minimum (pCi/g)	Average (pCi/g)
Cs-137			
U.S.	3.5	0.1	0.7
LLNL	0.9	0.027	0.12
McAFB	0.35	0	0.13
B-B Bkgd	0.46	0.03	0.14
B-B Survey	0.39	0	0.15
Runkle Canyon	0.3	0	0.1
Sterling	0.38	0.002	0.13
Sr-90			
U.S.	4	0.2	0.7
McAFB	1.08	0	0.31
B-B Bkgd	0.13	0.01	0.08
B-B Survey	0.24	0	0.05
Runkle Canyon	12	0	1.4
Sterling	0.82	-0.59	0.15
Pu-239/240			
U.S.	0.04	0.009	0.025
LLNL	8.7	0.037	1.8
McAFB	0.036	0	0.002
B-B Bkgd	0.07	0	0.006
B-B Survey	0.22	0	0.015
Sterling	0.03	-0.002	0.0092
Naturally Occurring Radionuclides			
Thorium Series U.S.	3.5	0.1	0.95
Thorium Series Sterling	1.5	0.22	0.91
Uranium Series U.S.	4.3	0.1	1.1
Uranium Series Sterling	2.6	0.48	1
Gross Alpha U.S.	60	1.4	14
Gross Alpha Sterling	41	0.08	16
Gross Beta U.S.	60	3.7	20
Gross Beta Sterling	49	2.1	19

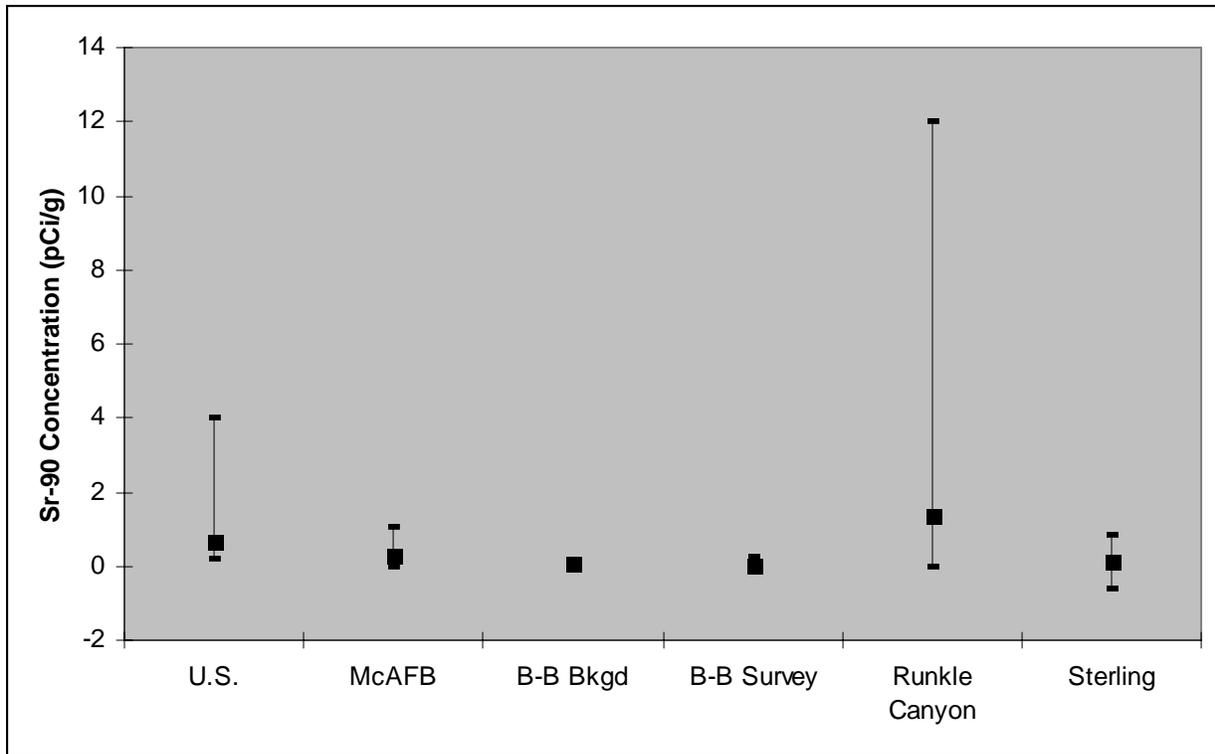


Figure 1 Comparison of Strontium-90 Concentrations

Figure 2 (Cs-137) shows that the U.S. background has the widest range of concentrations. The other surveys all have similar average concentrations and ranges. The majority of Cs-137 in the environment results from the atmospheric testing of nuclear weapons, which was stopped in 1963. The Cs-137 was distributed fairly uniformly on the surface of the earth, where the Cs-137 typically attaches to the fine, clay-sized particles in the soil. Areas that are paved or rocky do not provide as many surfaces for the Cs-137 to attach to, so some of the Cs-137 runs off and becomes concentrated in sediments or along the edges of paved or rocky areas. This results in higher variability (i.e., broader ranges) in Cs-137 concentrations. Areas with rough terrain, such as the western portion of the Sterling project, are expected to have greater variability in Cs-137 background although the average concentration is not expected to change.

Figure 3 (Pu-239/240) shows that both the LLNL and Brandeis-Bardin surveys have ranges of plutonium concentrations that extend off the graph. The Sterling project plutonium results are similar to the results seen in the other surveys.

Figures 4 and 5 compare the naturally occurring radionuclides for the Sterling project with the national background. These comparisons are included primarily as a control to document the quality of the laboratory analyses. The results for the Sterling project are comparable to the national background concentrations for naturally occurring radionuclides.

Attachments 1, 2, and 3 to this technical memorandum provide a more detailed analysis of the data review and evaluation of the radiological survey and laboratory analysis performed for the Sterling project.

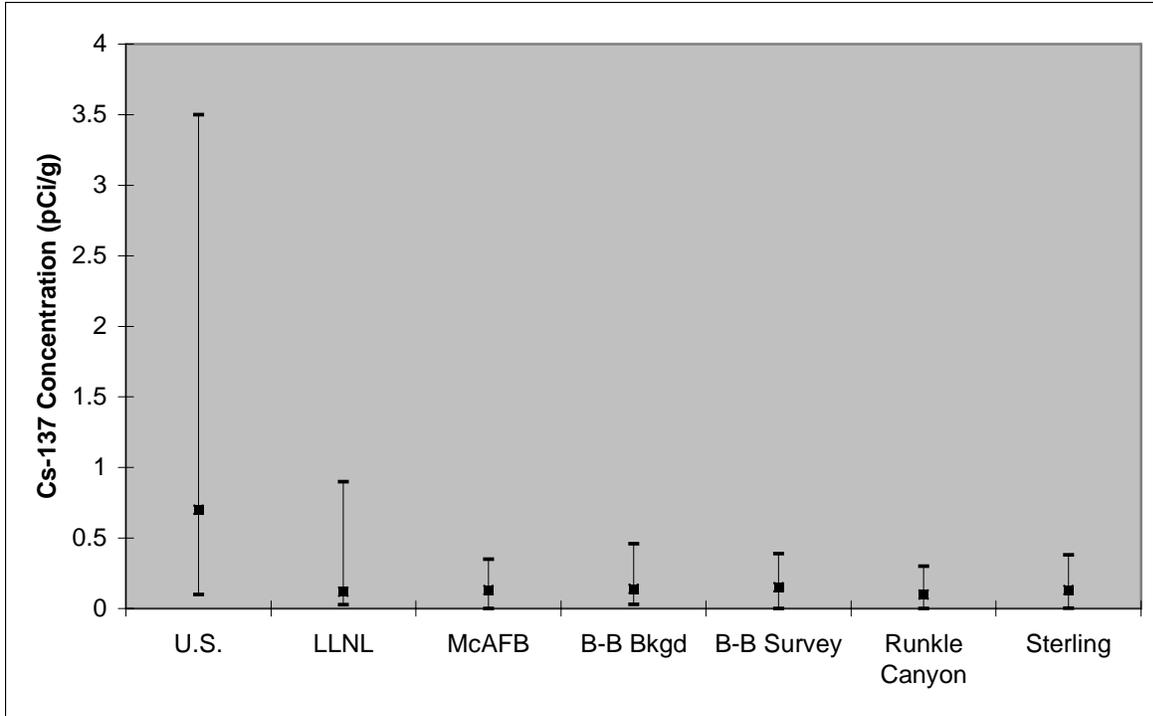


Figure 2 Comparison of Cesium-137 Concentrations

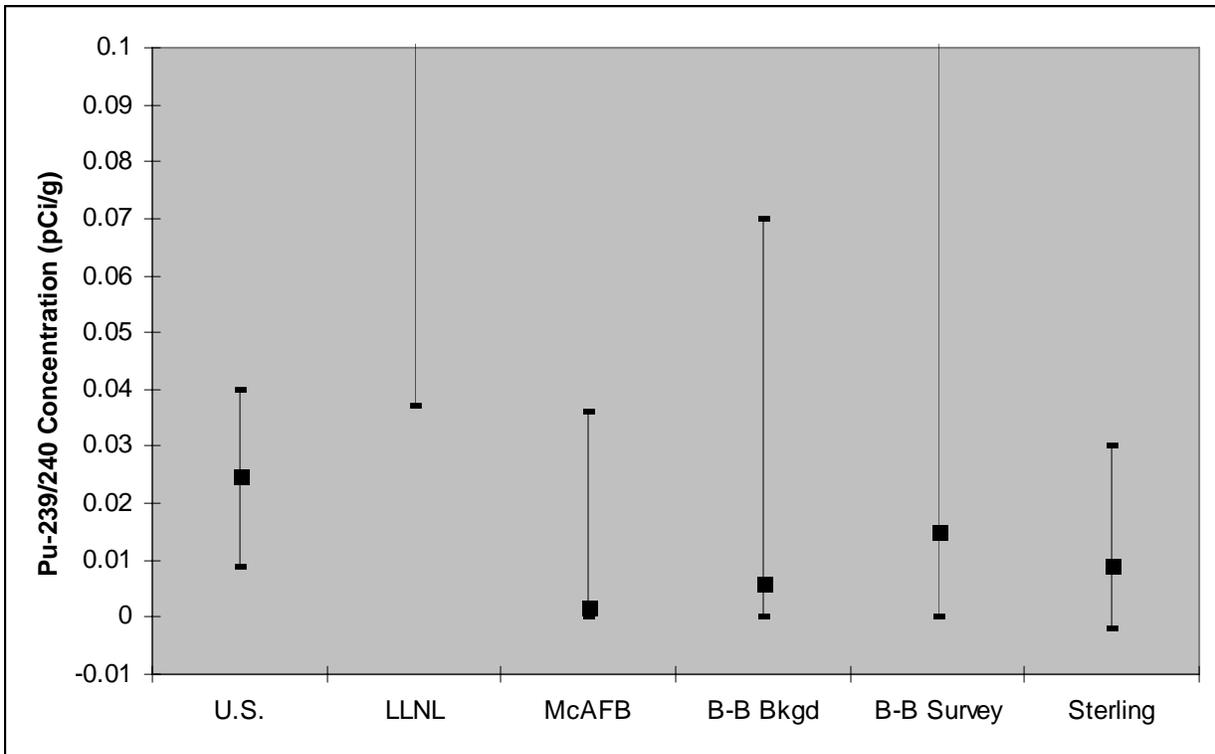


Figure 3 Comparison of Plutonium-239/240 Concentrations

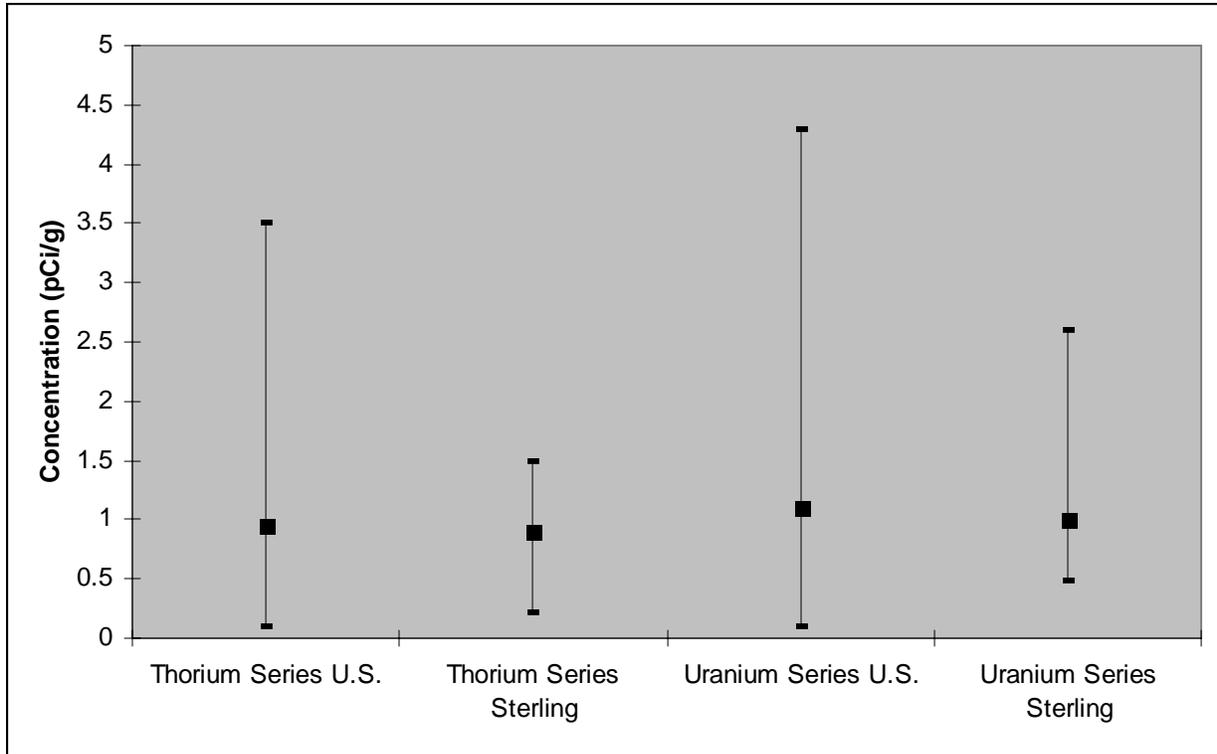


Figure 4 Comparison of Natural Decay Series Radionuclide Concentrations

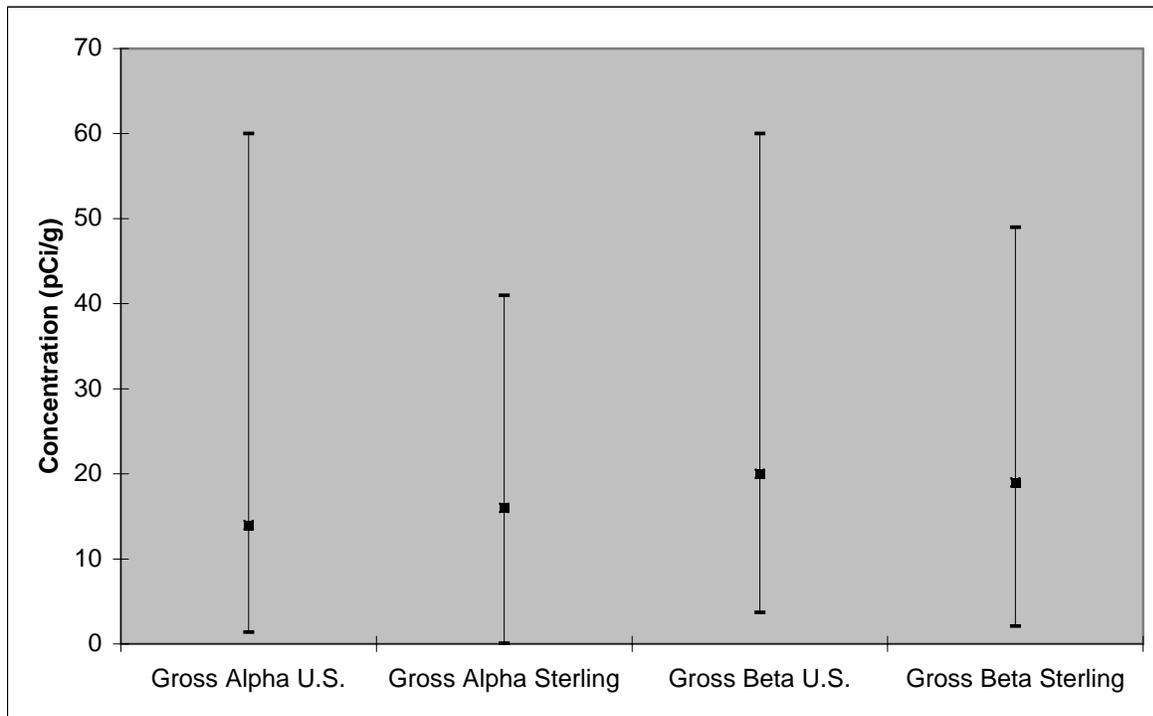


Figure 5 Comparison of Gross Alpha and Gross Beta Concentrations

3.0 SUMMARY AND CONCLUSIONS

Cabrera recommends that no additional radiological investigations be performed. It is unlikely that concentrations of the radionuclides of concern at the West Hill Project site result from activities at the SSFL. Based on the data available, it appears unlikely that any radioactivity has migrated from the SSFL onto the Sterling Property. Laboratory results, including those farthest west in the creek (i.e., LCR-48 and LCR-40), did not indicate any radionuclide concentrations above the referenced background values.

Attachment 1
Detailed Review and Evaluation
Of Radiological Survey and Laboratory Results
for the Sterling Project

1.0 PURPOSE

The purpose of this technical memorandum is to document the review and evaluation of existing radiological data. These data were collected to determine whether activities at the SSFL had impacted the soil in the area of the Sterling Project. Cabrera was tasked with the following activities, which are documented in this memorandum:

- Review radiological survey and laboratory analysis data (Sections 2.1 and 2.2),
- Confirm QA/QC and methodology with the analytical laboratory (Section 2.5), and
- Statistically evaluate radiological data, including a comparison with background levels of radioactivity (Section 3.0).

2.0 DATA REVIEW

The Sterling Project Radiological Study consisted of a screening survey followed by collection and laboratory analysis of soil samples. The screening survey was performed to provide qualitative information used to direct the soil sampling activities. The review of radiological data was divided into four sections. Section 2.1 discusses the review of the Sterling Project radiological screening survey. Section 2.2 discusses the review of the laboratory data collected as part of the Sterling Project radiological study. Section 2.3 presents a review of radiological surveys performed at other sites adjacent to the SSFL. Finally, Section 2.4 presents information on background levels of radioactivity and background radionuclide concentrations for the United States and areas around the SSFL.

The review of the radiological survey and laboratory data was performed based on guidance provided by the Environmental Protection Agency (EPA 2000) and the National Institute of Science and Technology (NIST 2006). The data review included developing tables of data and summary statistics along with preparing visual representations of the data.

2.1 Review of Sterling Project Screening Survey Data

The existing survey data consist of qualitative exposure rate measurements performed on a systematic grid. The grid consists of 100 foot by 100 foot squares, and is divided into three areas: West, North, and South. The site was surveyed between October 14, and November 18, 2005, using a Geiger-Mueller (GM) survey instrument.¹ During the survey, the highest and lowest contact exposure rate readings were recorded for each accessible grid. Approximately half of the grid (100 out of 220 squares) in the West area was along the boundary of the developable area. These grids were considered inaccessible and were not monitored. Representatives from the California Department of Toxic Substances Control (DTSC) were present during survey activities and confirmed the screening survey results using a similar survey instrument.

Posting plots of the lowest (Figure 3-1) and highest (Figure 3-2) exposure rate readings in each square were prepared. Posting plots show the results at the location the data were collected.

¹ The survey instrument was a Victoreen Model 190 Survey and Count Reader with a Victoreen Model 110D GM Pancake Probe with a 15 cm² thin window for detecting alpha (greater than 3.5 MeV), beta (greater than 35 keV), and photon (gamma and x-rays greater than 6 keV) radiation.

Colors were added to the posting plots to help identify trends in the data. Each color represents one standard deviation, with the mean value at the boundary between light blue and light green.

Summary statistics were calculated for the exposure rate measurement results. Table 3-1 lists the mean, standard deviation, median (i.e., middle value), minimum, and maximum exposure rate readings for the West, North, and South areas, as well as for all the areas combined. Summary statistics are provided for both the “Low” and “High” sets of exposure rate readings. The median values are similar to the mean values (i.e., less than one standard deviation of the mean separates the values). This shows the data distribution is symmetrical, without too much skewness (i.e., more results with high values than would be expected from a normal distribution). The mean value for the “High” values for the West area is higher than the mean value in the North and South areas. This indicates the exposure rates are higher in the western area than in the northern and southern areas, and supports the interpretation of the posting plots.

2.2 Review of Sterling Project Laboratory Data

The laboratory results consist of gamma spectroscopy, gross alpha, and gross beta results for forty-one (41) soil samples. Fifteen (15) of the samples were prepared for further analysis by gas-proportional counting for Sr-90, and by alpha spectrometry for Pu-238 and Pu-239/240. The number of soil samples collected in each area is based upon the qualitative data provided by the screening survey results.

Fifteen samples were collected from the West area, ten from the North area, and seven from the South area. In addition, there were seven samples collected from the creeks running through the site, along with two samples of concrete (i.e., CONC-1 and CONC-2) from a pile of debris. Samples analyzed by gamma spectrometry were dried, sealed, and allowed to stand for twenty-one days to allow for in-growth of radon progeny prior to counting. Gross alpha and gross beta measurements were performed by spreading 100 milligrams of sample in a thin layer and counting using a gas-proportional counter. Alpha spectrometry analyses for isotopic plutonium were performed by chemically separating the plutonium from a 3-gram soil sample and counting using a solid-state detector. Strontium-90 analyses were performed by chemically separating the strontium from the soil and then counting with a gas-proportional counter.

Radionuclides of concern were selected based on the Preliminary Endangerment Assessment Workplan (PEA, Allwest 2005) and results of similar surveys performed in the areas surrounding the SSFL (DMA 2005, McLaren/Hart 1995, Miller Brooks 2003, QST 1999). Two of these previous reports focused on Sr-90 (i.e., DMA 2005, Miller Brooks 2003). The other previous reports discussed Cs-137 and tritium in addition to Sr-90, and the McLaren/Hart report included Pu-238, Pu-239/240, and I-129. The radionuclides selected for detailed analysis in this report are Sr-90, Pu-238, Pu-239/240, and Cs-137. Because fluctuations in natural radiation background can impact the interpretation of survey and sample results, naturally occurring radionuclides were also included in this review. The uranium series radionuclides are represented by Bi-214, and the thorium series radionuclides are represented by Ac-228, which are both naturally occurring.

Histograms were prepared for each of the radionuclides of concern. The histograms (Figures 3-3 through 3-8) indicate some skewness in all of the distributions. Figure 3-5 indicates a possible lognormal² distribution for the cesium-137 concentrations.

Cumulative frequency distributions (CFDs) were prepared for each of the radionuclides of concern. The CFDs are used to identify potential outliers² from the data distribution. If all of the data are consistent with a normal distribution, the CFD will appear as a straight line. If the data describe some other continuous distribution (e.g., lognormal, Weibull) the data will appear as a curve. Gaps, jumps, or intersecting lines are indications of outliers and multiple distributions, and may indicate the presence of residual radioactivity in excess of background. The CFDs are presented in Figures 3-9 through 3-14. Figure 3-9 is a fairly straight line with a few small jumps, and indicates that all the actinium-228 data belong to a single distribution that is fairly consistent with the assumptions of a normal distribution. Figure 3-10 shows a fairly smooth curve for Bismuth, indicating that the data are probably associated with a single distribution that is not consistent with the assumptions of a normal distribution, with the possible exception of the maximum value. The remaining CFDs (i.e. Figure 3-9, 3-11, and 3-12) indicate the presence of relatively few potential outliers.

Summary statistics were calculated for each of the radionuclides of concern for each of the West, North, South, and Creek areas, as well as for the combined data set. All of the summary statistics are shown in Table 3-2. Similar to the exposure rate results, the mean and median values are similar for all of the areas indicating little or no skewness. The coefficient of variation (CV= standard deviation / mean × 100%) is presented in the summary statistics for all data.

2.3 Review of Other Local Survey Laboratory Data

Several surveys have been performed at three sites adjacent to the SSFL: the Brandeis-Bardin Institute, the Santa Monica Mountains Conservancy, and Runkle Canyon. The results of surveys at these sites provide information on radionuclide concentrations and radiation levels in areas adjacent to the SSFL. The survey at the Brandeis-Bardin Institute and Santa Monica Mountains Conservancy included a study of local background for the radionuclides of concern (see Section 2.4 and Table 3-3).

The Cs-137 results at the Brandeis-Bardin Institute and the Santa Monica Mountains Conservancy ranged from a minimum reported concentration of 0.039 pCi/g to a maximum reported concentration of 0.385 pCi/g, with an average of 0.15 pCi/g. The Cs-137 concentrations in Runkle Canyon ranged from a detection limit of 0.08 pCi/g to a maximum of 0.3 pCi/g.

The Sr-90 results at the Brandeis-Bardin Institute and the Santa Monica Mountains Conservancy ranged from a minimum reported concentration of 0.01 pCi/g to a maximum reported concentration of 0.24 pCi/g, with an average of 0.05 pCi/g. The Sr-90 concentrations in Runkle Canyon ranged from a detection limit of 0.8 pCi/g to 12 pCi/g.

The Pu-238 results at the Brandeis-Bardin Institute and the Santa Monica Mountains Conservancy ranged from a minimum reported concentration of 0.055 pCi/g to a maximum reported concentration of 0.22 pCi/g, with an average of 0.1 pCi/g. One Pu-239/240 result was

² Outliers are values that are unexpected when compared to other members of the distribution, for example very high or very low values may be identified as outliers.

above the detection limit, 0.015 pCi/g. The detection limit for Pu-239/240 ranged from 0.01 to 0.09 pCi/g. The Runkle Canyon survey did not include analyses for isotopic plutonium.

2.4 Background Radioactivity

Background radioactivity consists of a combination of cosmic and cosmogenic (i.e., originating from outer space), terrestrial (i.e., originating from the Earth), and ubiquitous manmade radionuclides and radioactivity (e.g., X-rays, nuclear medicine, consumer products, nuclear fuel cycle and fallout). Cosmic and cosmogenic radioactivity contributes approximately 8% of the average total effective dose equivalent for people living in the United States. Gamma radiation from terrestrial radionuclides also contributes approximately 8% of the annual dose. Inhalation of radon gas and progeny (also from terrestrial radionuclides) contributes more than 50% of the annual dose. Ubiquitous man-made radionuclides are primarily of interest for discussions about Sr-90, Cs-137, and Pu-239/240, which are related to nuclear power and fallout. Manmade radionuclides in the environment are responsible for less than 1% of the mean annual effective dose equivalent in the United States (NCRP 1987, NRC 1994).

Concentrations of terrestrial radionuclides in soil vary greatly. Table 3-3 lists the mean concentration in U.S. soil, along with the range of concentrations, for the terrestrial and man-made radionuclides of concern. Although the ranges in the table are typical, larger variations exist in certain areas (e.g., areas with granite, mountain areas, Sierra Nevada). The mean annual dose from background terrestrial radiation in the United States is estimated to be 28 millirem per year, with a range from 22 to 38 mrem per year (NCRP 1987). If we assume an exposure time of 4000 hours per year (i.e., 80 hours per week for 50 weeks) the background dose rate is 7 microrem per hour, with a range from 5.5 to 9.5 microrem per hour.

If we assume secular equilibrium for the members of the uranium and thorium decay series (i.e., all radionuclides have equal concentrations), we can calculate an expected gross alpha and gross beta background based on terrestrial radionuclides. The thorium decay series emits six alpha particles and four beta particles. The uranium decay series emits eight alpha particles and six beta particles. Potassium-40 also emits one beta particle. If we use the mean background concentrations in Table 3-3, the expected gross alpha background is 14 pCi/g (ranging from a minimum of 1.4 to a maximum of 60.2 pCi/g) and the expected gross beta background is 20 pCi/g (ranging from a minimum of 3.7 to a maximum of 60.3 pCi/g).

Concentrations of ubiquitous man-made radionuclides in the environment result from atmospheric testing of nuclear weapons. The majority of the man-made radionuclides are present in undisturbed surface soils.

Cosmic radiation levels vary with altitude, and are considered a constant source of external dose at the site. In general, the annual dose rate from cosmic radiation is approximately equal to the annual dose rate contributed by gamma radiation from terrestrial radionuclides (i.e., approximately 8%, NCRP 1987, NRC 1994).

2.5 Data Quality

Cabrera performed a review of the quality of the radiological screening survey and laboratory data. The purpose of the review was to determine if the data quality supports the intended use of the data.

Quality control data were provided with the laboratory data. Performance evaluation (PE) samples (i.e., known concentration) were analyzed with each batch of samples for gamma

spectroscopy, alpha spectrometry, strontium-90, gross alpha, and gross beta. The results of the PE samples were within tolerance limits established by the laboratory. Blanks were performed for each batch of samples for gross alpha and gross beta. The results for the blanks were within tolerance limits established by the laboratory.

The detection limits for the terrestrial radionuclides using gamma spectroscopy were 0.5 pCi/g, and the cesium-137 detection limit was 0.05 pCi/g. These detection limits are below the background concentrations listed in Table 3-3, so the method is acceptable for comparison to background. The detection limit for Sr-90 was approximately 0.22 pCi/g, which is below the mean background concentrations listed in Table 3-3. The detection limits for gross alpha and gross beta reported by the laboratory were also below the expected background concentrations calculated in Section 2.4 and listed in Table 3-3.

The detection limits for plutonium isotopes using alpha spectrometry were between 0.01 and 0.02 pCi/g, depending on the chemical recovery. This value exceeds the mean background concentration for Pu-238 listed in Table 3-3, and is approximately equal to the background concentrations for Pu-239/240. The only way to decrease the detection limit is to increase the amount of soil analyzed. However, increasing the amount of soil analyzed introduces chemical interferences that limit the detection limit. It was determined that alpha spectrometry represents the best available method for evaluating isotopic plutonium in soil.

The screening survey results were recorded using units for exposure rate. Exposure rates are primarily used to perform health and safety surveys to determine if radiation levels are acceptable for workers, and are not used to demonstrate compliance with environmental regulations. Exposure refers to the number of ionizations occurring in a unit mass of air due to the transfer of energy from a gamma or X radiation field emitted by a radioactive source. The screening survey was performed using a Geiger-Mueller (GM) detector and detected all types of ionizing radiation, not just gamma and X-rays. The measurements for this survey were performed at ground surface, where exposure rates are typically recorded at a height of one meter above the ground. Survey instruments are typically calibrated with a single radionuclide that is expected to provide the majority of the external dose in the survey area (i.e., Cs-137 for nuclear facilities or Ra-226 for environmental applications), and do not account for mixtures of radionuclides that could contribute to exposure. The exposure rates used to record the results of the screening level survey should not be compared with documented exposure rates because of differences in the way the measurements were performed. However, the exposure rate measurements still provide a qualitative relative measure of radiation levels in different areas of the site, since the radiation meter performs an internal calculation to convert the counts actually measured by the detector into the exposure rate units of microrem per hour.

3.0 STATISTICAL EVALUATION

A statistical evaluation of the data was performed to assist in the identification of locations with elevated concentrations of radionuclides of concern or levels of radioactivity. Identification of such areas of elevated activity could indicate that the area had been impacted by radiological activities at the SSFL. The screening survey was performed to provide a qualitative indication of areas with elevated radiation levels, while the more sensitive soil analysis measurements were used to determine if radionuclides were present with concentrations exceeding expected background levels. Because the data collection objectives were different, the results of the screening survey and the laboratory results were evaluated independently.

3.1 Evaluation of Screening Survey Results

The review of the screening survey data (Section 2.1) indicated that levels of radioactivity in the West area were higher than levels of radioactivity in the North or South areas. To test the observation that the relative exposure rate readings were higher in the West, a Kruskal-Wallis analysis of variance (ANOVA) on Ranks test was run on the exposure rate readings from the North, West and South areas. This test was followed by a pair wise method for isolating the group(s) that differs from the others (Dunn's method). The exposure rates measured in the West were significantly higher than the exposure rates measured in the North and South areas.

The review of laboratory data (Section 2.2) indicated that the highest average concentrations for Ac-228, Bi-214, Cs-137, and Pu-239/240 were from samples in the West area. The highest average Sr-90 and Pu-238 concentrations were found in the North area, and the highest average Gross Alpha and Gross Beta concentrations were found in the South area. The Kruskal-Wallis ANOVA was performed to determine if higher concentrations of naturally occurring Th-232 and Ra-226 in the West area (as measured by the daughter products) are the cause of the elevated exposure rates. The naturally occurring radionuclide concentrations in the West area are not significantly higher than radionuclide concentrations in the North and South. However, the numbers of sample analyses (i.e., 37 gamma spectroscopy results above the detection limit and 15 alpha spectrometry results compared to 274 exposure rate measurements) reduce the ability of the statistical tests to demonstrate a significant difference.

The slightly elevated exposure rate readings in the West resulted in more samples being collected in the West (15 samples for gamma spectroscopy and 9 samples for plutonium and Sr-90) than in the North (10 samples for gamma spectroscopy and 3 samples for plutonium and Sr-90), South (7 samples for gamma spectroscopy and 3 samples for plutonium and Sr-90) and Creek (7 samples for gamma spectroscopy) areas.

3.2 Evaluation of Laboratory Analysis Results

The statistical evaluation of laboratory results consists of a simple comparison of individual results to the referenced background data concentrations and previous survey results performed in areas adjacent to the SSFL. Any results for the radionuclides of concern outside the referenced range of background concentrations (see Table 3-3) provide evidence that the area has been impacted by radioactivity or radionuclides.

3.2.1 Radionuclides of Concern

The Sr-90 laboratory results are consistent with the referenced background ranges shown in Table 3-3. The average concentration for the Sterling project is less than the average concentrations reported in most of the other background and survey studies. The average and range for Sr-90 reported for the Brandeis-Bardin background and survey studies indicates that the analytical methods are significantly different. Comparisons between the Sterling project and the Brandeis-Bardin studies are probably not meaningful because of these differences. The maximum Sr-90 concentration (0.82 pCi/g at G9-W) is less than the upper bound of the national range (4.0 pCi/g) but exceeds the upper bound of the Brandeis-Bardin background study (0.13 pCi/g). The maximum concentration exceeds the Brandeis-Bardin Institute maximum result (0.24 pCi/g), but is less than the maximum Sr-90 concentration reported at Runkle Canyon (12 pCi/g).

The Cs-137 results are consistent with the referenced background ranges shown in Table 3-3. The average Cs-137 concentration for the Sterling project is less than the average U.S. background, and is essentially equal to the average Cs-137 concentration reported in other studies. The maximum Cs-137 concentration (0.37 pCi/g at N8-W) appears to be consistent with the other Cs-137 laboratory data collected for the Sterling Project. This value is less than the upper bound of the national range (3.5 pCi/g) and the Lawrence Livermore range (0.9 pCi/g) and the Brandeis-Bardin maximum background value of 0.46 pCi/g. The maximum concentration is less than the Brandeis-Bardin Institute maximum survey result (0.39 pCi/g).

The isotopic plutonium results are consistent with the referenced background ranges shown in Table 3-3. All of the Pu-238 results were below the detection limit of approximately 0.015 pCi/g. Four of the Pu-239/240 concentrations were reported above the detection limit, but below the upper bound of all the background ranges listed in Table 3-3.

3.2.2 Naturally Occurring Radionuclides

The actinium-228 results are consistent with the referenced background information. The average concentration is below the referenced average background concentrations. The maximum value of 1.5 pCi/g for sample N8-W is only two standard deviations above the mean and well within the referenced range of values for soils in the United States.

The bismuth-214 results are consistent with the referenced background information. The average concentration is at or below the referenced average background concentrations, and all of the results are below the upper bound of the background values (i.e., 4.3 pCi/g).

The gross alpha and gross beta results are consistent with the referenced background information. The average concentrations are essentially equal to the average background concentrations calculated for the U.S. All of the reported concentrations are less than the upper bound of the expected range of gross alpha and gross beta calculated in Section 2.3.

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Attachment 2
Tables

Table 3-1 Survey Data Summary Statistics

	Lowest Reading (microrem per hour)	Highest Reading (microrem per hour)
North		
Mean	9.7	21.6
Standard Deviation	3.4	3.8
Median	9.9	21.9
Minimum	1.8	10.2
Maximum	18.5	28.3
South		
Mean	15.8	22.8
Standard Deviation	3.9	2.9
Median	15.9	23.3
Minimum	6.8	13.5
Maximum	23.7	27.6
West		
Mean	13.8	24.8
Standard Deviation	3.9	2.8
Median	14.1	25.2
Minimum	4.5	15.2
Maximum	23.1	29.3
All		
Mean	12.9	23.2
Standard Deviation	4.4	3.5
Median	12.6	23.75
Minimum	1.8	10.2
Maximum	23.7	29.3

Table 3-2 Laboratory Data Summary Statistics

	*Ac-228	*Bi-214	Cs-137	Sr-90	Pu-238	Pu-239/240	Alpha	Beta
North								
Average	0.80	0.92	0.094	0.17	0.0013	0.0033	16.5	21.4
St Dev	0.30	0.24	0.076	0.12	0.0040	0.0023	11.1	10.5
Median	0.83	0.92	0.072	0.16	0.002	0.002	12.8	19.8
Minimum	0.45	0.63	0.0020	0.064	-0.003	0.002	3.8	2.1
Maximum	1.3	1.3	0.26	0.3	0.005	0.006	38.1	43.2
South								
Average	0.92	1.0	0.081	0.084	0.00067	0.011	19.2	23.9
St Dev	0.30	0.33	0.060	0.37	0.0023	0.011	10.7	11.7
Median	0.90	1.0	0.055	0.038	0.002	0.016	16.8	20.3
Minimum	0.44	0.66	0.031	-0.26	-0.002	-0.002	7.6	16.0
Maximum	1.3	1.7	0.19	0.47	0.002	0.02	41.3	49.1
West								
Average	1.0	1.1	0.16	0.16	0.00056	0.011	17.9	18.7
St Dev	0.29	0.35	0.13	0.41	0.0024	0.0085	9.6	9.9
Median	1.0	0.99	0.17	0.12	0.00	0.01	15.6	15.6
Minimum	0.48	0.67	0.013	-0.59	-0.003	-0.001	7.0	8.4
Maximum	1.5	1.8	0.037	0.82	0.004	0.03	38.4	42.1
Creeks								
Average	0.84	0.96	0.052	-0.763	0.005	0.000	9.1	10.8
St Dev	0.30	0.69	0.012	-0.018	0.002	0.000	5.7	3.3
Median	0.85	0.74	0.054	-0.306	0.000	0.000	10.6	10.7
Minimum	0.22	0.48	0.037	-1.998	0.000	0.000	0.080	6.6
Maximum	1.3	2.6	0.069	-0.018	0.016	0.000	19.0	18.4
All								
Average	0.91	1.0	0.11	0.15	0.00073	0.0092	15.8	18.5
St Dev	0.30	0.41	0.11	0.34	0.0025	0.0083	9.8	10.1
Median	0.89	0.96	0.073	0.12	0.00	0.006	13	16.5
Minimum	0.22	0.48	0.0020	-0.59	-0.0030	-0.002	0.080	2.1
Maximum	1.5	2.6	0.037	0.82	0.01	0.03	41	49.1
Count	37	37	38	15	15	15	41	41

* Ac-228 represents the thorium series radionuclides, and Bi-214 represents the uranium series radionuclides, which are both naturally occurring.

Table 3-3 Documented Background Concentrations

Radionuclide	Source	Reference Location	Average Concentration (pCi/g)	Range (pCi/g)	Reference
Actinium-228	Natural	U.S.	0.95	0.1 to 3.5	UNSCEAR 2000
Bismuth-214	Natural	U.S.	1.1	0.1 to 4.3	UNSCEAR 2000
Potassium-40	Natural	U.S.	10	2.7 to 20	UNSCEAR 2000
Cesium-137	Man-made	U.S.	0.7	0.1 to 3.5	EPA 1998
	Man-made	Lawrence Livermore	0.12	0.027 to 0.9	EPA 1998
	Man-made	McClellan AFB	0.13	< L _C * to 0.35	Cabrera 2004
	Man-made	Brandeis-Bardin	0.14	0.03 to 0.46	McLaren/Hart 1995
Strontium-90	Man-made	U.S.	0.7	0.2 to 4.0	EPA 1998
	Man-made	McClellan AFB	0.31	< L _C to 1.08	Cabrera 2004
	Man-made	Brandeis-Bardin	0.080	0.01 to 0.13	McLaren/Hart 1995
Pu-238	Man-made	U.S.	0.001	5×10 ⁻⁴ to 2×10 ⁻³	EPA 1998
	Man-made	Lawrence Livermore	0.29	<0.03 to 1.23	EPA 1998
	Man-made	McClellan AFB	0.0004	< L _C to 0.018	Cabrera 2004
	Man-made	Brandeis-Bardin	<0.02	<0.005 to <0.02	McLaren/Hart 1995
Pu-239/240	Man-made	U.S.	0.025	9×10 ⁻³ to 0.04	EPA 1998
	Man-made	Lawrence Livermore	1.8	0.037 – 8.7	EPA 1998
	Man-made	McClellan AFB	0.002	< L _C to 0.036	Cabrera 2004
	Man-made	Brandeis-Bardin	<0.07	<0.006 to <0.07	McLaren/Hart 1995
Gross Alpha	Natural	U.S.	14	1.4 to 60.2	Calculated Section 2.4
Gross Beta	Natural	U.S.	20	3.7 to 60.3	Calculated Section 2.4

* Less than the critical level, which is the 95% upper confidence limit for the background distribution assuming Poisson counting statistics.

Attachment 3
Figures

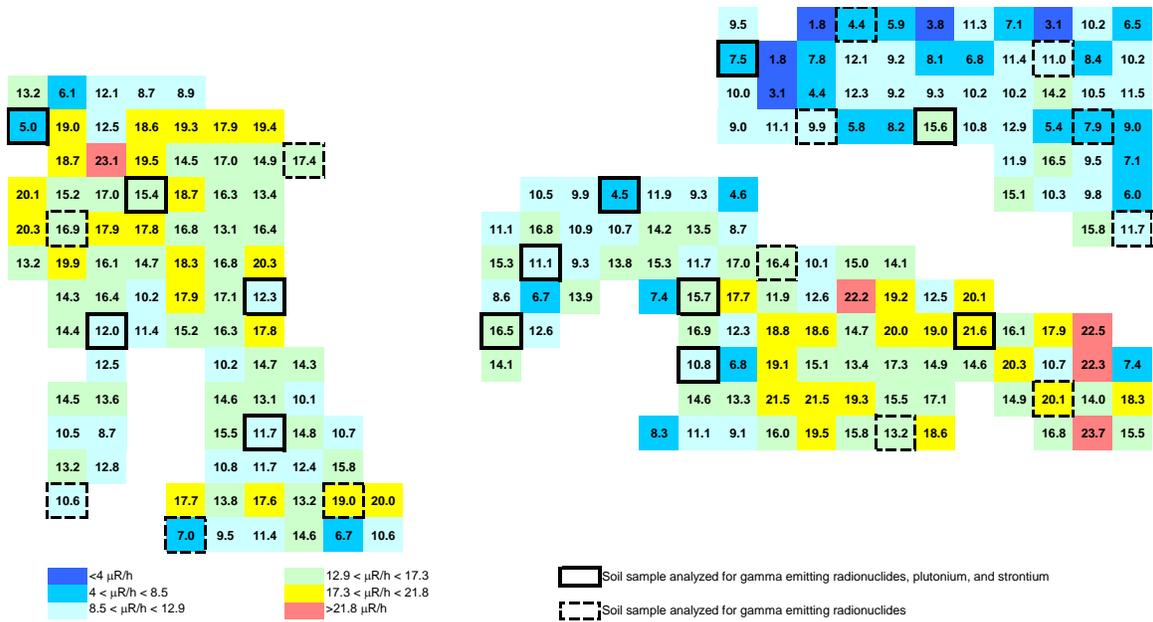


Figure 3-1 Posting Plot of Lowest Exposure Rate Readings in Each Grid Square

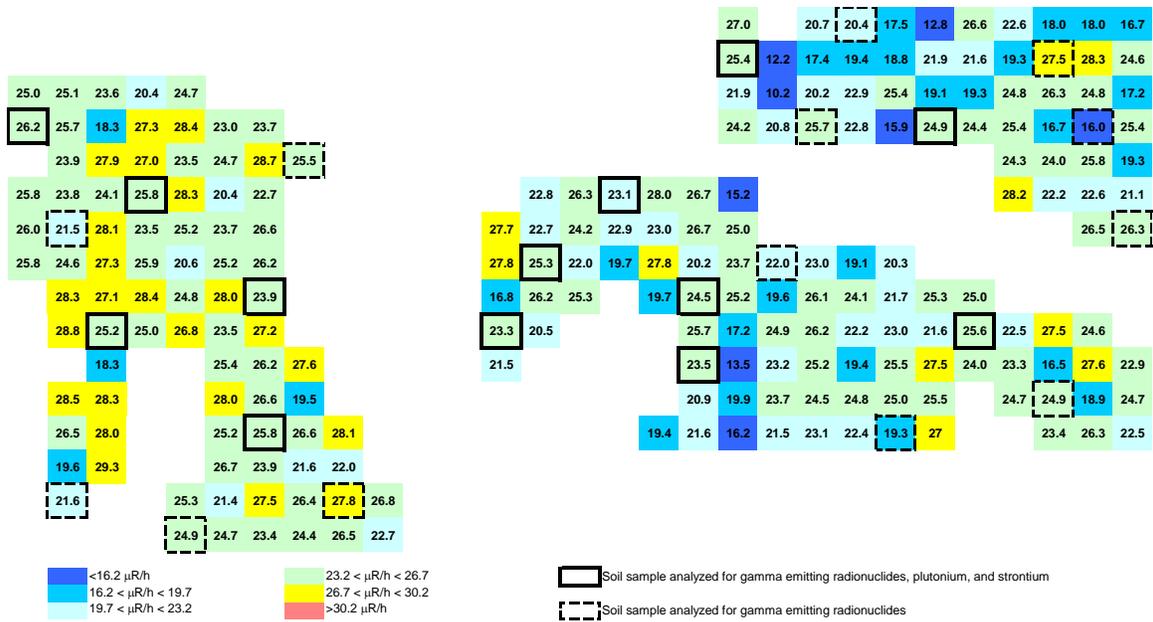


Figure 3-2 Posting Plot of the Highest Exposure Rate Readings in Each Grid Square

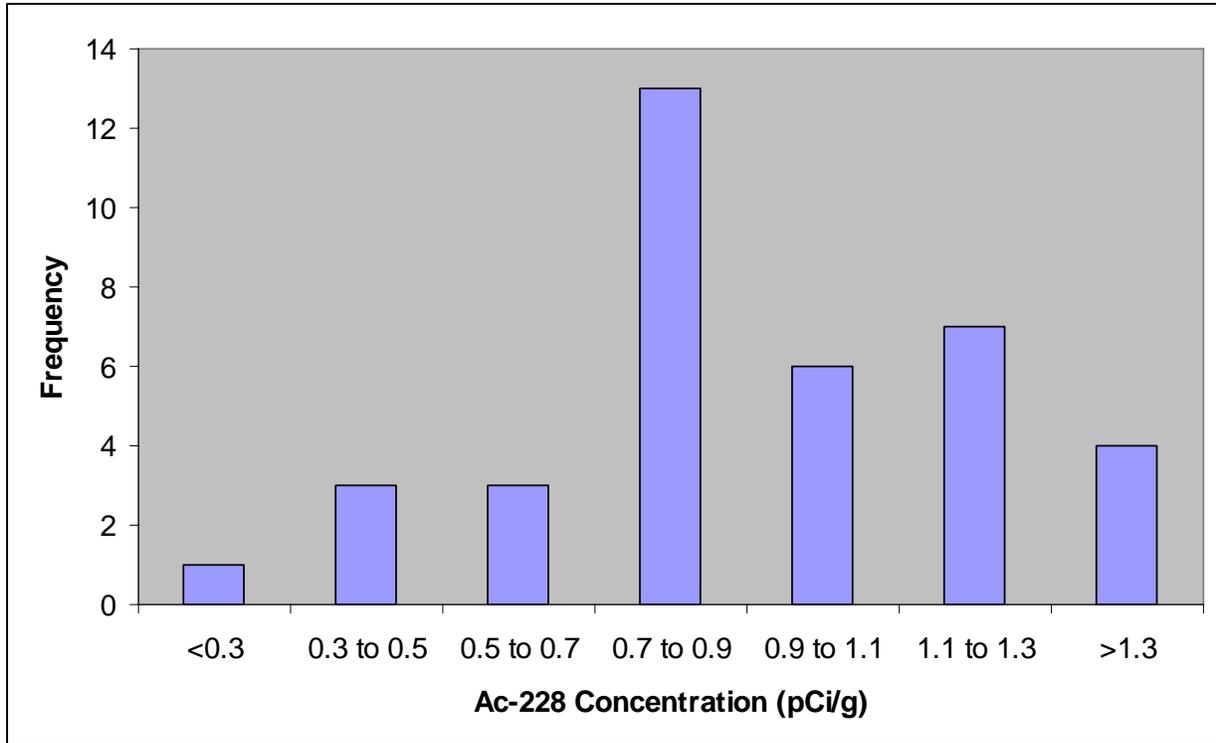


Figure 3-3 Histogram of Actinium-228 Laboratory Results

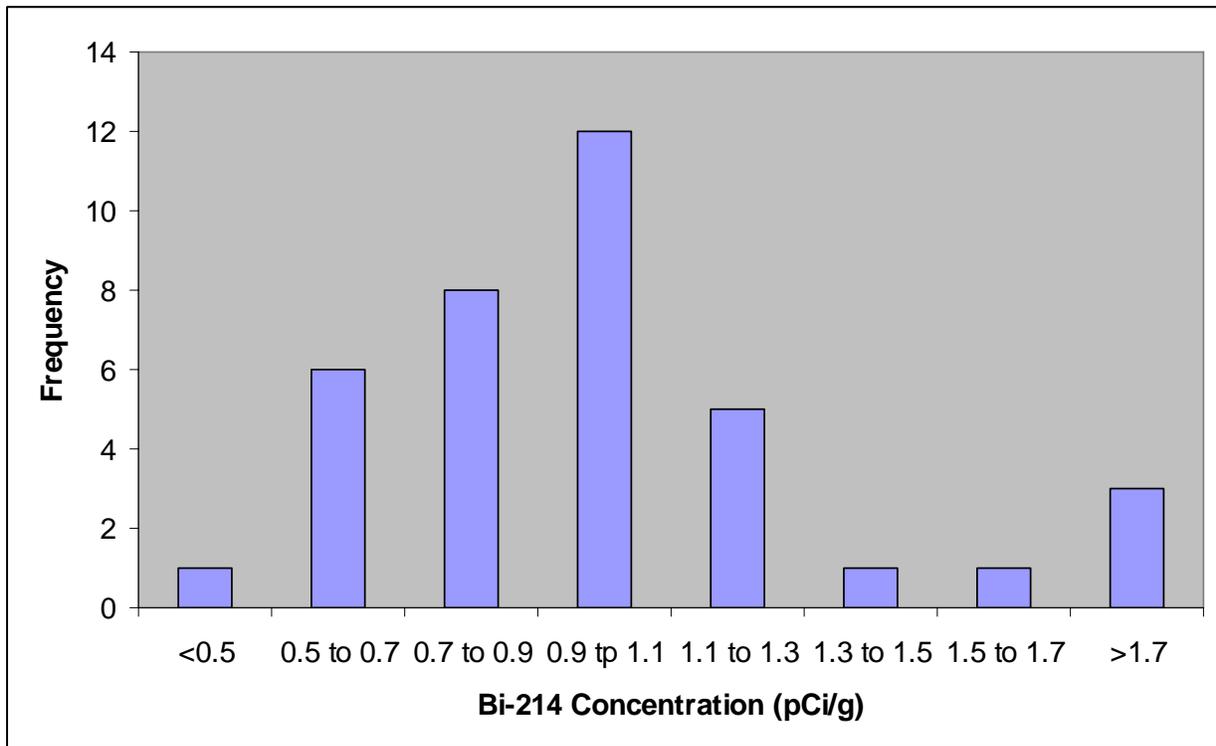


Figure 3-4 Histogram of Bismuth-214 Laboratory Results

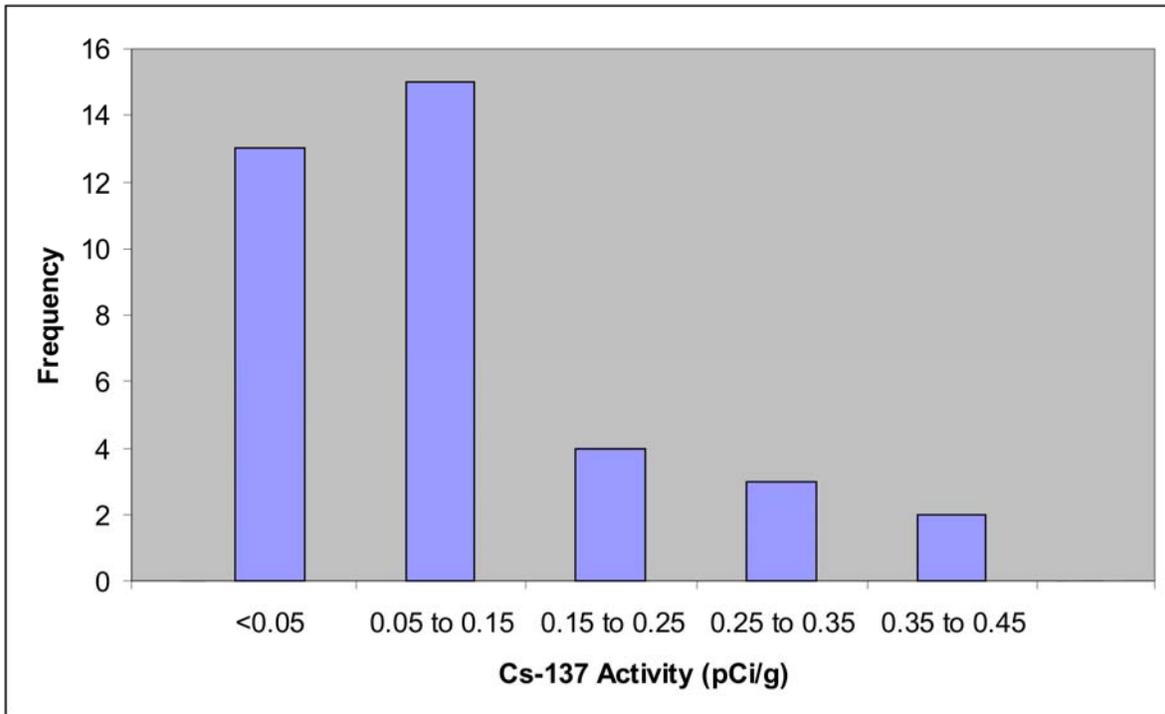


Figure 3-5 Histogram of Cesium-137 Laboratory Results

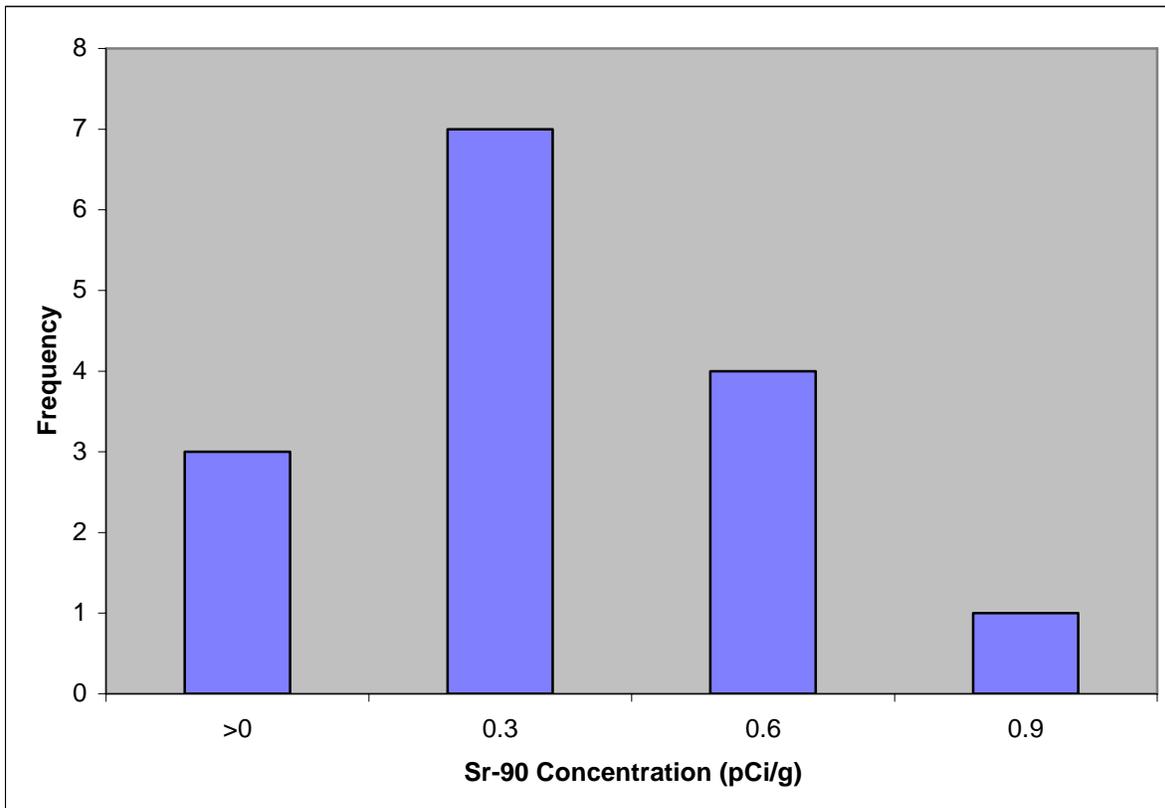


Figure 3-6 Histogram of Strontium-90 Laboratory Results

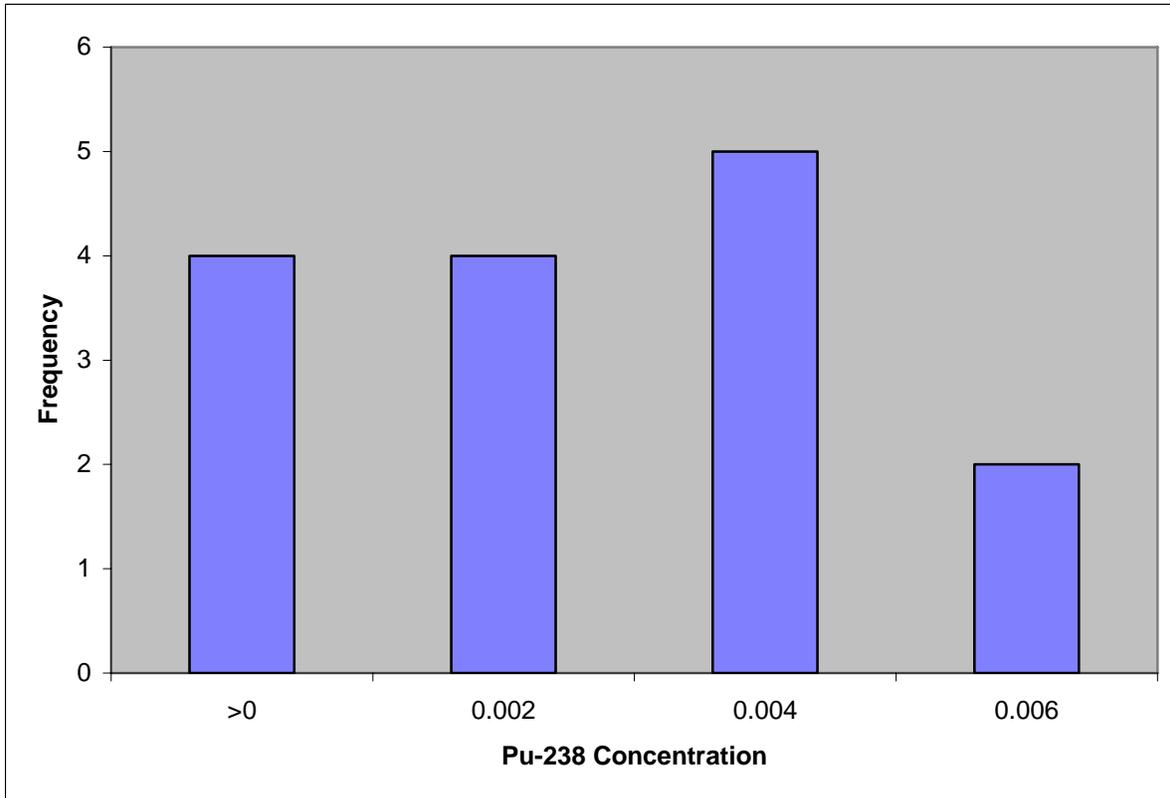


Figure 3-7 Histogram of Plutonium-238 Laboratory Results

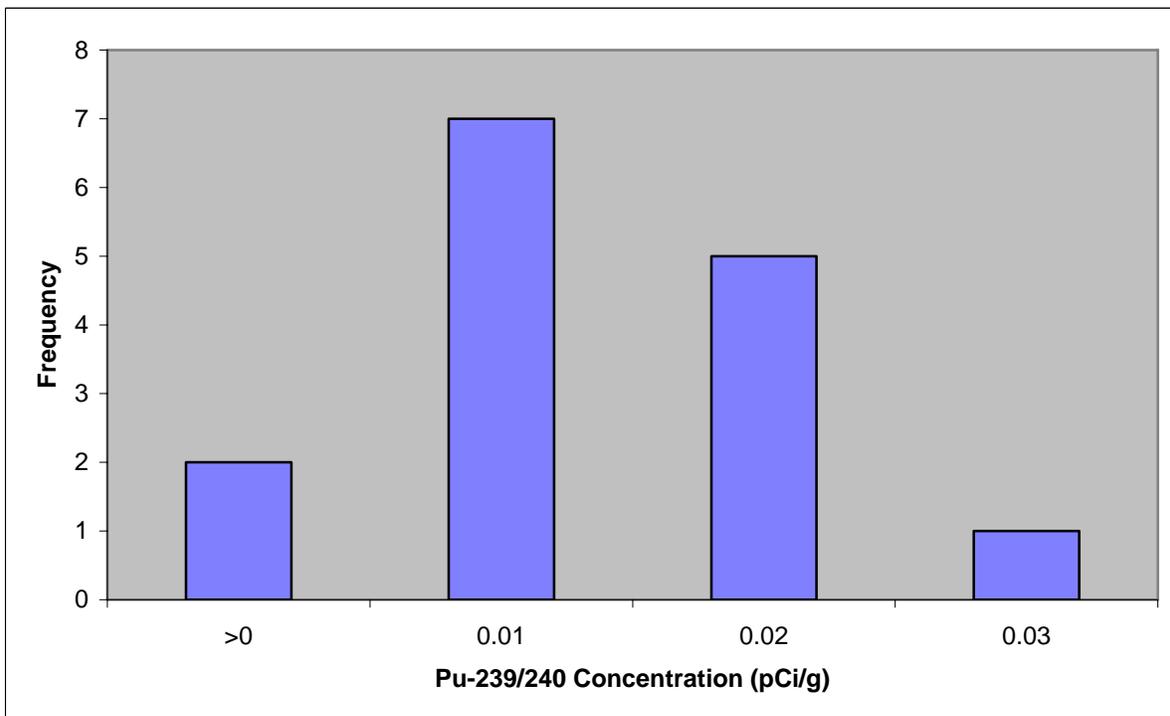


Figure 3-8 Histogram of Plutonium-239/240 Laboratory Results

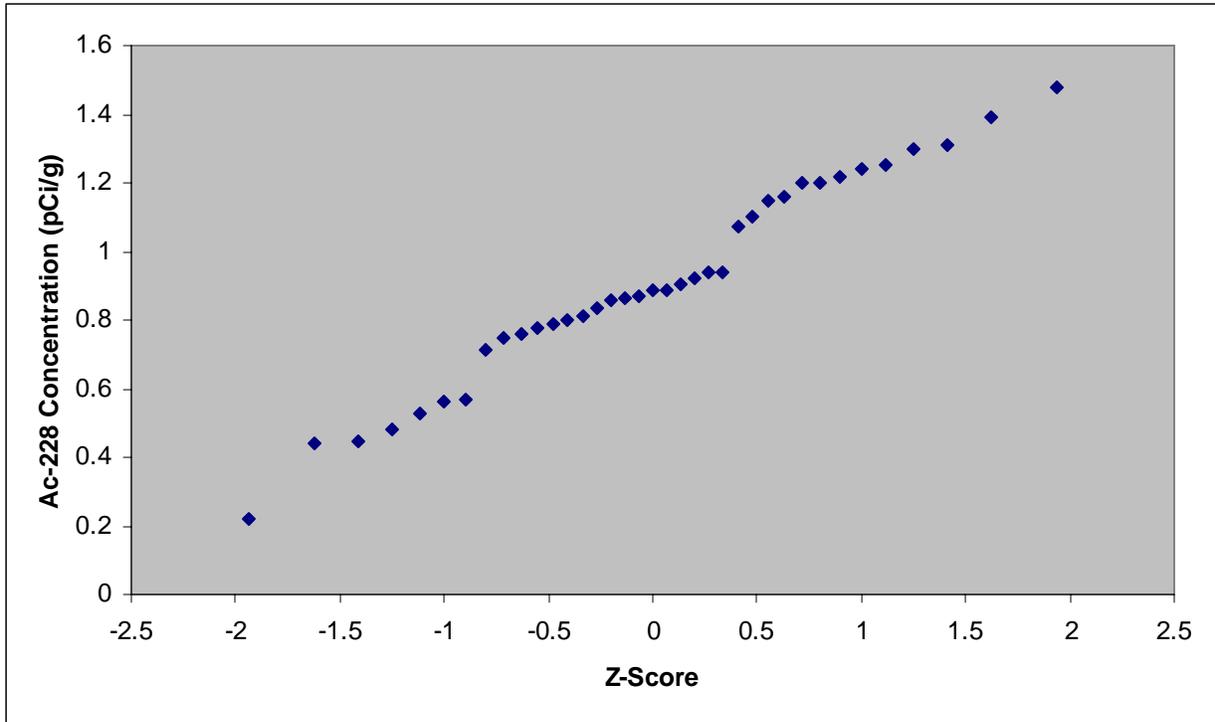


Figure 3-9 Cumulative Frequency Distribution of Actinium-228 Laboratory Results

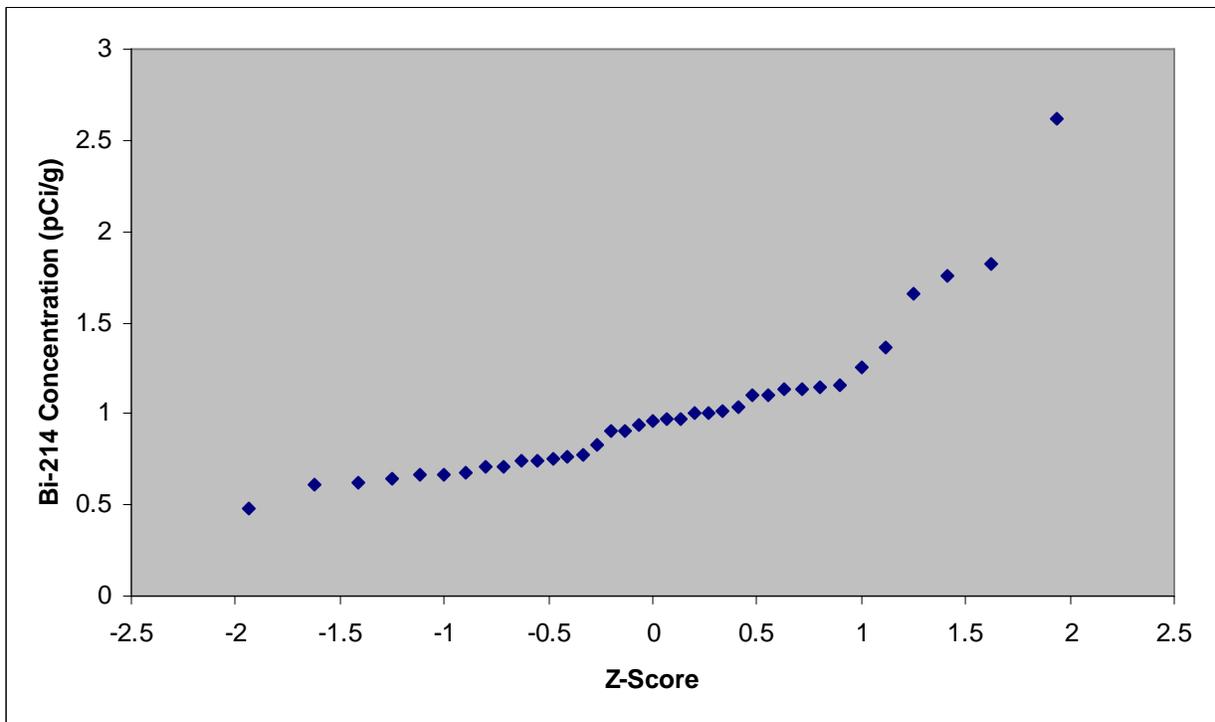


Figure 3-10 Cumulative Frequency Distribution of Bismuth-214 Laboratory Results

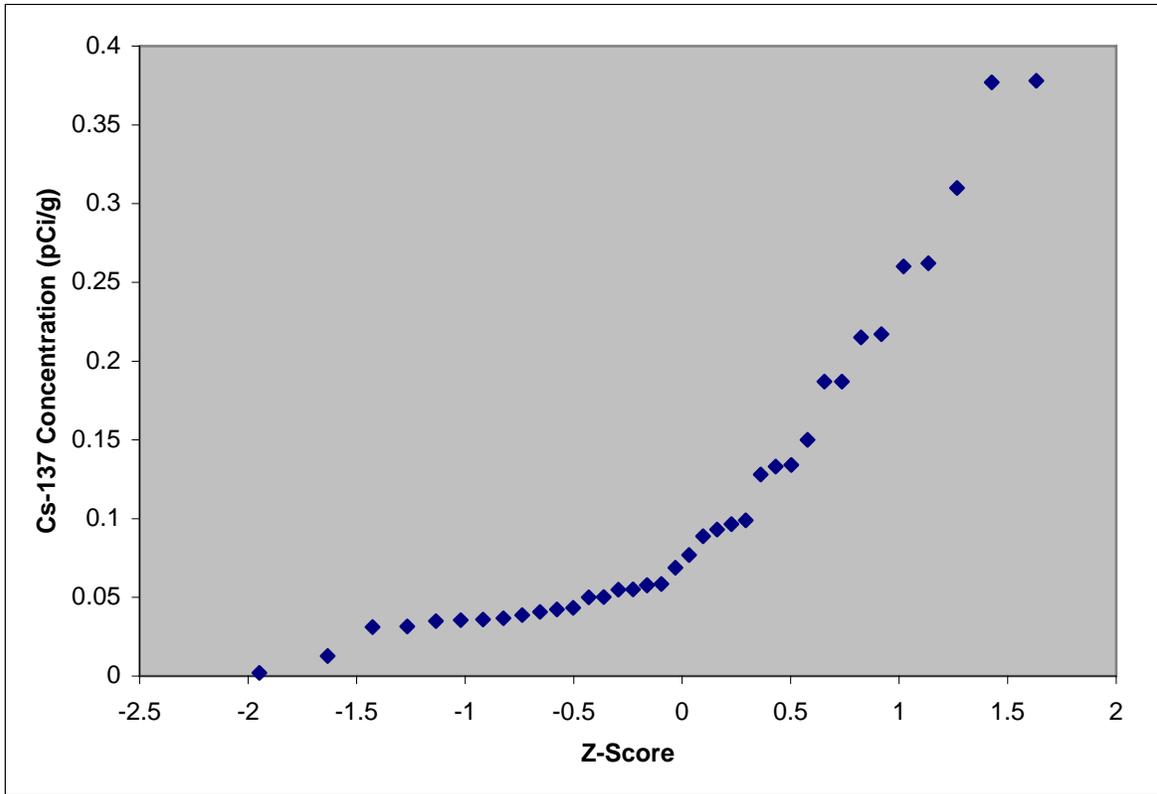


Figure 3-11 Cumulative Frequency Distribution of Cesium-137 Laboratory Results

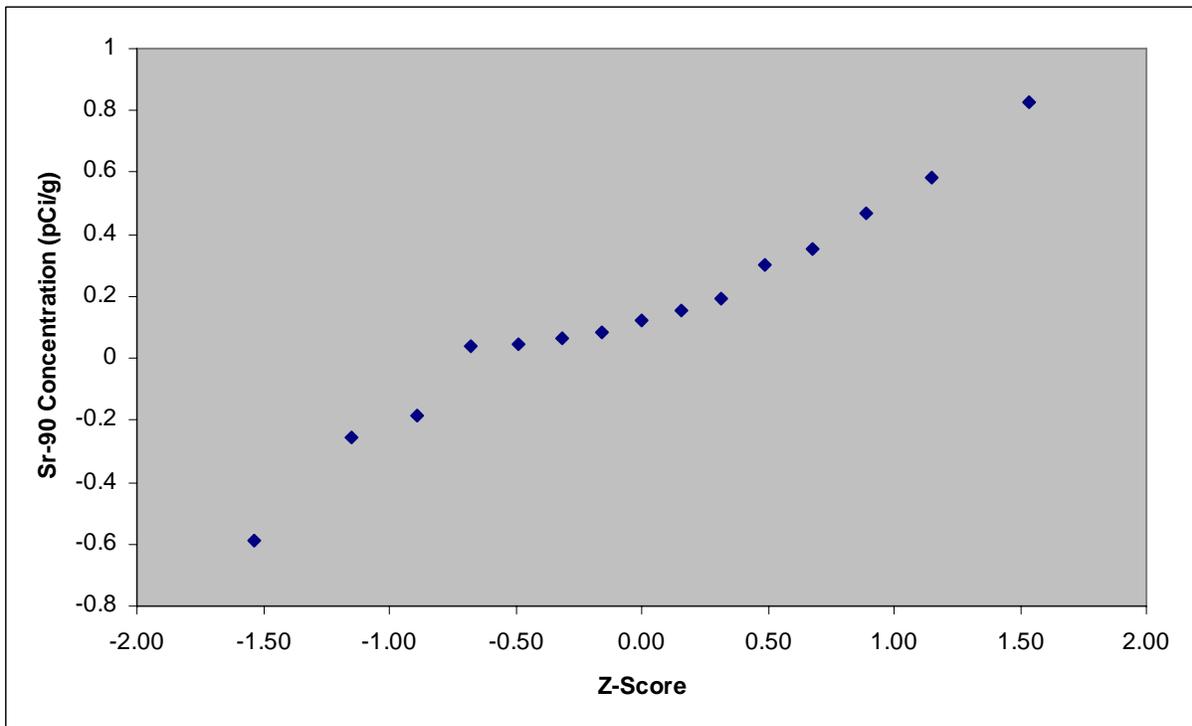


Figure 3-12 Cumulative Frequency Distribution of Strontium-90 Laboratory Results

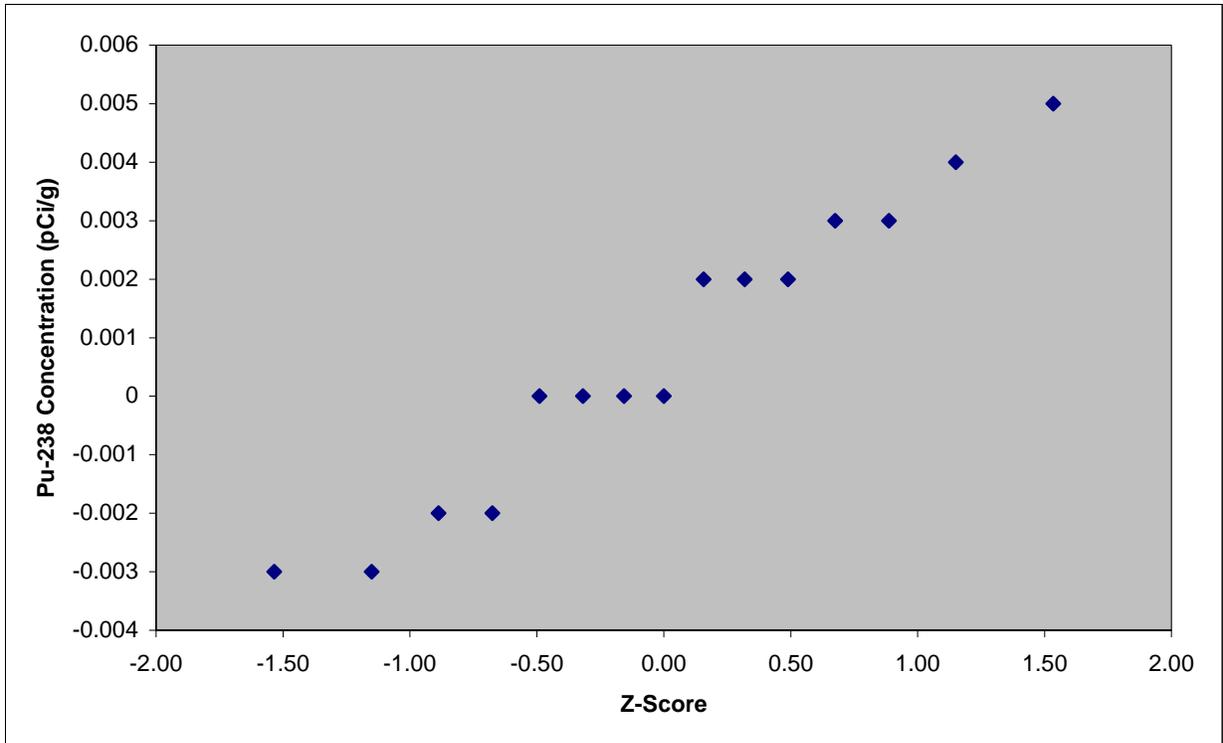


Figure 3-13 Cumulative Frequency Distribution of Plutonium-238 Laboratory Results

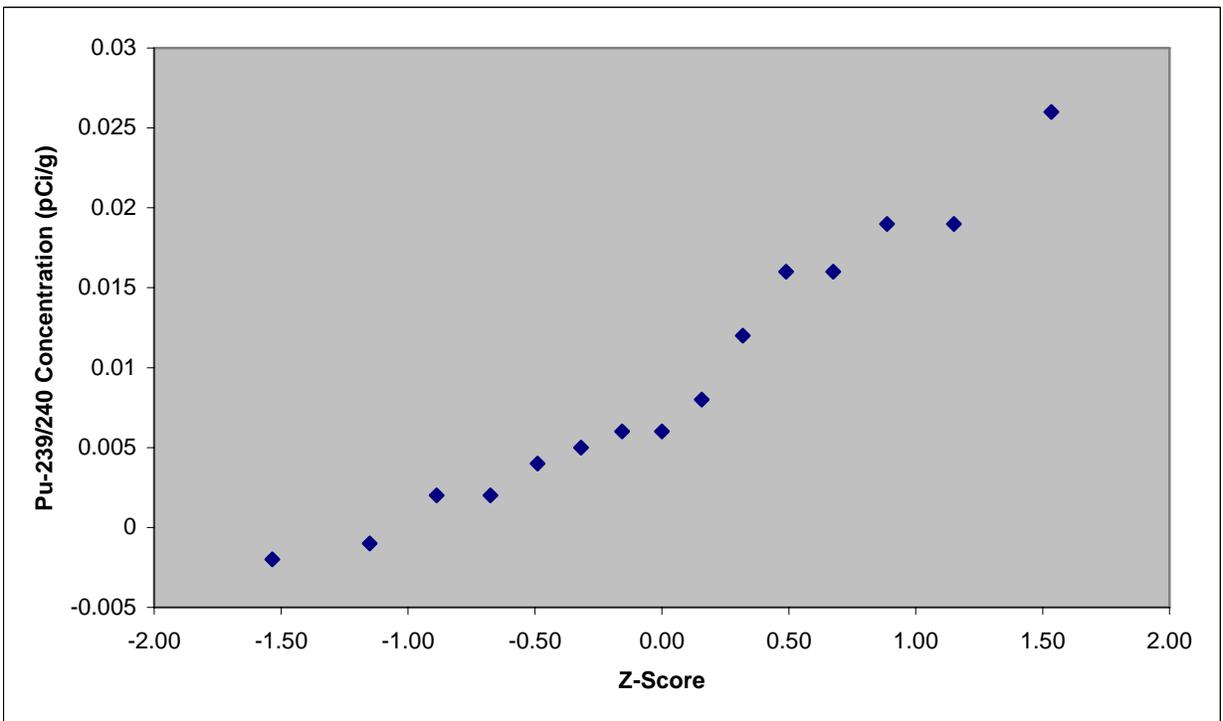


Figure 3-14 Cumulative Frequency Distribution of Plutonium-239/240 Laboratory Results

Figure 3 – 14, Victoreen Model 190 and Probe 489-110D Technical Specifications

[Order online](#)

[View catalog](#)

Specifications

Survey and Count Rate Meter (Model 190)

Operating ranges (dependent on selected probe)

Toggles and selects rate units:

μ R/hr mR/hr R/hr
 CPM CPS
 μ Sv/hr mSv/hr
 DPM Bq/cm² μ Ci/cm²

and the complementary units in the integrate mode:

μ R mR R
 CTS D
 μ Sv mSv
 Bq μ Ci

with the integrated time value in seconds

Accuracy Within 10% of reading between 10% to 100% of full scale indication on any range, exclusive of typical energy dependence.

Accuracy is probe dependent

Detector GM Pancake Probe (see probe specifications to follow)

Adapter module Contains calibration data and high voltage settings for a specified probe. The module is available with an MHV connector

Note: Additional adapter modules can be purchased for use with multiple probes. Specify Model 190060 for MHV adapter module

By using multiple replaceable probe adaptor modules, each module can be assigned to a specific probe. The module's EEPROM stores the calibration factors for a specific probe. When plugged into a Model 190 Survey and Count Rate Meter, it automatically sets the high voltage and activates the calibration data set for the specific probe. By using modules married to specific probes, the user has the convenience of using only one Model 190 with multiple probes for survey work.

Log Logs 211 data points and sequentially labels data points (Data retrieval requires the Infrared Communicator, Model 190-1A). With the communicator, alphanumeric up to 16 characters can be programmed into the Model 190 to name the locations of individual data points to be collected. The location name is displayed when the Log button is pressed. Press the Log button again, and the data point is stored

Battery condition Automatically indicates when battery is low

Power requirements Four 9 V batteries, 200 hours operation

Warm up time 15 second diagnostic check

Check source Model 450UCS ²³⁸U, 0.064 μ Ci check source, 2 x 2 yellow card

Environmental

Relative humidity 0 to 95%, non-condensing

Temperature range - 10° to + 60°C

Housing material Molded ABS plastic, splash-proof case

Dimensions (survey meter only) 3.75 (w) x 2.1 (d) x 9.2 in (h) (9.2 x 5 x 23.4 cm)

Weight (survey meter only) 1.56 lb (0.7 kg)

Optional accessories

Infrared Communicator (Model 190-1A), additional features can be activated, such as log mode, alarm setpoint, energy specific calibrations, and default setting changes. Features and pushbuttons can also be locked-out to set up the Model 190 in a user defined mode of operation

Note: The Model 190EX Survey and Count Rate Meter with pancake probe is calibrated to NIST standards. The 190 and probe are calibrated in mR/h or μ Sv/h units as a standard. The Model 190EX unit pancake probe is not weatherproof. The end user may calibrate in additional radiation units using the Infrared Communicator, Model 190-1A

GM Pancake Probe (Model 489-110D)

Detector Halogen-quenched "Pancake" GM tube

Radiation detected Alpha above 3.5 MeV, beta above 35 keV and gamma above 6 keV

Operating voltage 900 V; compatible with all GM survey meters

Window 15 cm² (1.75 in \varnothing) mica, 1.4 to 2.0 mg/cm² thick

Typical background 30 CPM

Sensitivity 3500 CPM/mR/hr

Protective screen Stainless steel, hexagonal pattern providing 86% open area

Housing material ABS plastic

Cable Shielded cord; approximately 9.50 ft long MHV coaxial connector

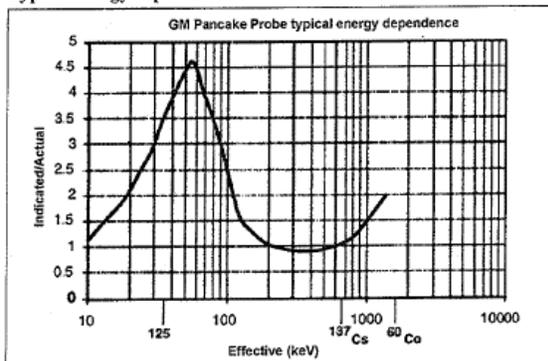
Dimensions

Detector housing 2.50 (w) x 0.875 (d) x 4.25 in (h) (6.36 x 2.2 x 10.8 cm)

Handle 1 in \varnothing x 6.25 in (d) (2.5 x 16.5 cm) (excluding connector)

Weight (pancake probe only) 0.625 lb (0.28 kg)

Typical energy dependence



Efficiency The GM Pancake Probe, Model 489-110D efficiency is shown below. In a recent performance check, the numbers shown represent typical results obtained:

Isotope	%Efficiency
¹⁴ C	5
⁹⁹ Tc	12
¹³⁷ Cs	24
⁹⁰ Sr	59
³⁶ Cl	26
²⁴¹ Am	8
¹²⁹ I	2
²³⁰ Th	15
²³⁹ Pu	12

Note: The efficiency formula used to calculate the % Efficiency is: Eff. % = (CPM x 100) / DPM

Available model(s)

190EX 190 Meter with GM Pancake Probe on Telescoping Assembly

CE Tested. Meets applicable standards.

For more information, receive our full product catalog, or order online, contact Radiation Management Services business of Fluke Biomedical: 440.248.9300 or www.flukebiomedical.com/rms

Specifications are subject to change without notice

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190EX-ds rev 4 07 mar 05

Appendix "A"



ENVIRONMENTAL



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999
Customer : 2021804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Laboratory Report

Introduction: This report package contains total of 35 pages divided into three sections:

- Case Narrative (2 Pages): An overview of the work performed at FGL.
- Chemical Results (32 Pages): Results for each sample submitted
- Quality Control (1 Page): Supporting Quality Control (QC) results.

This report package pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab Sample ID #	Matrix
A2-N	10/27/2005	11/11/2005	SP 511999-01	Sld
A4-W	10/31/2005	11/11/2005	SP 511999-02	Sld
B5-S	10/27/2005	11/11/2005	SP 511999-03	Sld
B7-W	10/31/2005	11/11/2005	SP 511999-04	Sld
E16-W	10/31/2005	11/11/2005	SP 511999-05	Sld
B15-W	10/31/2005	11/11/2005	SP 511999-06	Sld
C4-N	10/27/2005	11/11/2005	SP 511999-07	Sld
C10-W	10/31/2005	11/11/2005	SP 511999-08	Sld
D1-N	10/27/2005	11/11/2005	SP 511999-09	Sld
D2-S	10/28/2005	11/11/2005	SP 511999-10	Sld
D6-W	10/31/2005	11/11/2005	SP 511999-11	Sld
I4-N	10/27/2005	11/11/2005	SP 511999-12	Sld
G7-S	10/28/2005	11/11/2005	SP 511999-13	Sld
G9-W	10/31/2005	11/11/2005	SP 511999-14	Sld
G13-W	10/31/2005	11/11/2005	SP 511999-15	Sld
H5-W	10/31/2005	11/11/2005	SP 511999-16	Sld
I2-N	10/27/2005	11/11/2005	SP 511999-17	Sld
I4-S	10/27/2005	11/11/2005	SP 511999-18	Sld
I15-W	10/31/2005	11/11/2005	SP 511999-19	Sld
I4-N	10/27/2005	11/11/2005	SP 511999-20	Sld
M5-N	10/27/2005	11/11/2005	SP 511999-21	Sld
M10-W	10/31/2005	11/11/2005	SP 511999-22	Sld
N6-S	10/28/2005	11/11/2005	SP 511999-23	Sld
N8-W	10/28/2005	11/11/2005	SP 511999-24	Sld
K6-S	10/28/2005	11/11/2005	SP 511999-25	Sld
K7-N	10/27/2005	11/11/2005	SP 511999-26	Sld
P3-N	10/27/2005	11/11/2005	SP 511999-27	Sld
P6-W	10/28/2005	11/11/2005	SP 511999-28	Sld
P7-S	10/28/2005	11/11/2005	SP 511999-29	Sld
P9-N	10/27/2005	11/11/2005	SP 511999-30	Sld
R9-W	10/28/2005	11/11/2005	SP 511999-31	Sld
Debrl P6	10/28/2005	11/11/2005	SP 511999-32	Sld

SP 511999 Case Narrative Page 1

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 Stockton, CA 95215
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 FAX: (209) 942-0423
 CA ELAP Certification No. 1563

Field Office
 Visalia, California
 TEL: (559) 734-9473
 FAX: (559) 734-8435
 Mobile: (559) 737-2399

December 30, 2005

Lab ID : SP 511999
Customer : 2021804

Allwest Remediation

Sampling and Receipt Information: All samples were received, prepared and analyzed within the method specified holding times. All samples were received at room temperature. All samples were checked for pH if acid or base preservation required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Forms.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio Chemistry QC

901 1	11/28/2005:A - GS201 All analysis quality controls are within established criteria
	12/08/2005:A - GS201 All analysis quality controls are within established criteria
9310	11/15/2005:S207 All preparation quality controls are within established criteria, except: The following note applies to Gross Alpha: 426 Blank Spike (BS) not within Acceptance Range (AR). Data was accepted based on the LCS or CCV recovery.
	12/08/2005:S207 All preparation quality controls are within established criteria, except: The following note applies to Gross Alpha: 426 Blank Spike (BS) not within Acceptance Range (AR). Data was accepted based on the LCS or CCV recovery.
	11/22/2005:A - GP217 All analysis quality controls are within established criteria.
	11/22/2005:A - GP218 All analysis quality controls are within established criteria
	11/22/2005:A - GP219 All analysis quality controls are within established criteria
	12/12/2005:S - GP217 All analysis quality controls are within established criteria.
	12/12/2005:S - GP218 All analysis quality controls are within established criteria.
	12/12/2005:S - GP219 All analysis quality controls are within established criteria.

Certification: I certify that this data package is in compliance with NELAC Standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following signature

FGL ENVIRONMENTAL


Kelly A. Dunnahoo, B.S.
Laboratory Director

KAD:cl



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-01

Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 27, 2005-00:00

Sampled By :

Received On: November 11, 2005-10:00

Matrix : Solid

Description : A2-N
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.561 ± 0.198	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Bismuth - 212	0.327 ± 0.360	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Bismuth - 214	0.627 ± 0.143	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Cesium - 137	0.00201 ± 0.0326	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Lead - 212	0.791 ± 0.141	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Lead - 214	0.705 ± 0.133	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Potassium - 40	21.4 ± 5.72	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Radio Chemistry G:1							
Gross Alpha	16.8 ± 4.72	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01
Gross Beta	27.6 ± 4.14	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-02
Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 31, 2005-00:00
Sampled By :
Received On : November 11, 2005-10:00
Matrix : Solid

Description : A4-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.07 ± 0.295	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Bismuth - 212	0.460 ± 0.462	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Bismuth - 214	0.967 ± 0.200	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Cesium - 137	0.0552 ± 0.0349	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Lead - 212	1.20 ± 0.202	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Lead - 214	0.705 ± 0.143	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Potassium - 40	18.5 ± 4.98	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Radio Chemistry G:1							
Gross Alpha	22.6 ± 5.25	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01
Gross Beta	28.9 ± 4.31	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01

MCL = Maximum Contaminant Level. Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Lab ID : SP 511999-03

Customer ID: 2-21804

Sampled On : October 27, 2005-00:00

Sampled By :

Received On: November 11, 2005-10:00

Matrix : Solid

Description : B5-S
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.867 ± 0.320	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Bismuth - 212	1.06 ± 0.598	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Bismuth - 214	1.02 ± 0.230	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Cesium - 137	0.167 ± 0.0615	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Lead - 212	0.991 ± 0.187	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Potassium - 40	13.6 ± 3.88	pCi/g		901.1	11/28/05:S222	901.1	11/29/2005:A00
Radio Chemistry G:1							
Gross Alpha	16.8 ± 3.71	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01
Gross Beta	16.0 ± 2.42	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-04
Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : October 31, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : B7-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.859 ± 0.287	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Bismuth - 212	0.208 ± 0.382	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Bismuth - 214	0.902 ± 0.196	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Cesium - 137	0.215 ± 0.0652	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Lead - 212	1.12 ± 0.201	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Lead - 214	0.868 ± 0.169	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Potassium - 40	18.3 ± 4.97	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Radio Chemistry G:1							
Gross Alpha	36.1 ± 7.49	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01
Gross Beta	38.2 ± 4.94	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Lab ID : SP 511999-05

Customer ID: 2-21804

Sampled On : October 31, 2005-00:00

Sampled By :

Received On: November 11, 2005-10:00

Matrix : Solid

Description : E16-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.862 ± 0.257	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Bismuth - 212	0.348 ± 0.363	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Bismuth - 214	0.666 ± 0.150	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Cesium - 137	0.0127 ± 0.0211	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Lead - 212	0.974 ± 0.172	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Lead - 214	0.816 ± 0.151	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Potassium - 40	16.8 ± 4.54	pCi/g		901.1	11/28/05:S222	901.1	11/30/2005:A00
Radio Chemistry G:1							
Gross Alpha	12.0 ± 3.23	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01
Gross Beta	15.6 ± 2.33	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-06
Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 31, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : B15-W
Project : Sterling

Sample Results - Radio

Table with 6 columns: Constituents, Result ± Error, Units, MCL, Preparation Method Date/ID, Analysis Method Date/ID. Rows include Gamma Isotopic (Actinium, Bismuth, Cesium, Lead, Potassium) and Radio Chemistry (Gross Alpha, Gross Beta).

MCL = Maximum Contaminat Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-07

Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 27, 2005-00:00

Sampled By :

Received On: November 11, 2005-10:00

Matrix : Solid

Description : C4-N
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.446 ± 0.208	pCi/g		901.1	11/28/05:S222	901.1	12/01/2005:A00
Bismuth - 212	0.396 ± 0.524	pCi/g		901.1	11/28/05:S222	901.1	12/01/2005:A00
Bismuth - 214	0.937 ± 0.213	pCi/g		901.1	11/28/05:S222	901.1	12/01/2005:A00
Cesium - 137	0.150 ± 0.0596	pCi/g		901.1	11/28/05:S222	901.1	12/01/2005:A00
Lead - 212	1.00 ± 0.189	pCi/g		901.1	11/28/05:S222	901.1	12/01/2005:A00
Lead - 214	1.09 ± 0.200	pCi/g		901.1	11/28/05:S222	901.1	12/01/2005:A00
Potassium - 40	19.8 ± 5.43	pCi/g		901.1	11/28/05:S222	901.1	12/01/2005:A00
Radio Chemistry G:1							
Gross Alpha	9.39 ± 3.99	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01
Gross Beta	16.5 ± 3.30	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-08

Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : October 31, 2005-00:00

Sampled By :

Received On: November 11, 2005-10:00

Matrix : Solid

Description : C10-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.790 ± 0.249	pCi/g		901 1	11/28/05:S222	901 1	12/01/2005:A00
Bismuth - 212	0.941 ± 0.508	pCi/g		901 1	11/28/05:S222	901 1	12/01/2005:A00
Bismuth - 214	0.828 ± 0.178	pCi/g		901 1	11/28/05:S222	901 1	12/01/2005:A00
Cesium - 137	0.0578 ± 0.0332	pCi/g		901 1	11/28/05:S222	901 1	12/01/2005:A00
Lead - 212	0.888 ± 0.162	pCi/g		901 1	11/28/05:S222	901 1	12/01/2005:A00
Lead - 214	1.03 ± 0.180	pCi/g		901 1	11/28/05:S222	901 1	12/01/2005:A00
Potassium - 40	15.5 ± 4.24	pCi/g		901 1	11/28/05:S222	901 1	12/01/2005:A00
Radio Chemistry G:1							
Gross Alpha	38.4 ± 7.73	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01
Gross Beta	42.1 ± 5.14	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-09
Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 27, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : D1-N
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.571 ± 0.220	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Bismuth ²¹² - 212	0.496 ± 0.443	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Bismuth ²¹⁴ - 214	1.26 ± 0.259	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Cesium - 137	0.0424 ± 0.0360	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Lead - 212	0.669 ± 0.138	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Lead - 214	1.28 ± 0.221	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Potassium - 40	12.6 ± 3.56	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Radio Chemistry G:1							
Gross Alpha	3.82 ± 3.40	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01
Gross Beta	2.11 ± 1.98	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-10
Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : October 28, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : D2-S
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.442 ± 0.200	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Bismuth - 212	0.498 ± 0.465	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Bismuth - 214	0.709 ± 0.178	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Cesium - 137	0.0310 ± 0.0403	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Lead - 212	0.667 ± 0.144	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Lead - 214	0.771 ± 0.162	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Potassium - 40	17.4 ± 4.83	pCi/g		901.1	11/28/05:S222	901.1	12/02/2005:A00
Radio Chemistry G:1							
Gross Alpha	7.63 ± 2.75	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01
Gross Beta	16.5 ± 2.31	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-11

Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 31, 2005-00:00

Sampled By :

Received On: November 11, 2005-10:00

Matrix : Solid

Description : D6-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:I							
Actinium - 228	1.20 ± 0.359	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Bismuth - 214	1.76 ± 0.344	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Cesium - 137	0.217 ± 0.0713	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Lead - 212	1.20 ± 0.219	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Lead - 214	1.88 ± 0.305	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Potassium - 40	19.5 ± 5.38	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Radio Chemistry G:I							
Gross Alpha	7.30 ± 3.75	pCi/g		9310	11/15/05:S207	9310	11/22/2005:A01
Gross Beta	14.3 ± 3.11	pCi/g		9310	11/15/05:S207	9310	11/22/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-12
Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : October 27, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : F4-N
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.30 ± 0.342	pCi/g		901 1	11/28/05:S222	901 1	12/05/2005:A00
Bismuth - 212	0.504 ± 0.451	pCi/g		901 1	11/28/05:S222	901 1	12/05/2005:A00
Bismuth - 214	0.905 ± 0.197	pCi/g		901 1	11/28/05:S222	901 1	12/05/2005:A00
Cesium - 137	0.134 ± 0.0532	pCi/g		901 1	11/28/05:S222	901 1	12/05/2005:A00
Lead - 212	1.24 ± 0.212	pCi/g		901 1	11/28/05:S222	901 1	12/05/2005:A00
Lead - 214	0.929 ± 0.179	pCi/g		901 1	11/28/05:S222	901 1	12/05/2005:A00
Potassium - 40	16.8 ± 4.58	pCi/g		901 1	11/28/05:S222	901 1	12/05/2005:A00
Radio Chemistry G:1							
Gross Alpha	32.1 ± 7.01	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01
Gross Beta	43.2 ± 5.11	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01

MCL = Maximum Contaminant Level. Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-13

Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 28, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : G7-S
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.31 ± 0.376	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Bismuth - 212	1.11 ± 0.649	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Bismuth - 214	1.00 ± 0.226	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Cesium - 137	0.133 ± 0.0609	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Lead - 212	1.40 ± 0.242	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Lead - 214	1.17 ± 0.214	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Potassium - 40	23.2 ± 6.31	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Radio Chemistry G:1							
Gross Alpha	17.2 ± 5.30	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01
Gross Beta	21.6 ± 3.77	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01

MCL = Maximum Contaminat Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Lab ID : SP 511999-14
Customer ID: 2-21804

Sampled On : October 31 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : G9-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.921 ± 0.303	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Bismuth - 212	1.28 ± 0.583	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Bismuth - 214	1.00 ± 0.222	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Cesium - 137	0.310 ± 0.0892	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Lead - 212	1.30 ± 0.226	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Lead - 214	1.27 ± 0.224	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Potassium - 40	19.6 ± 5.34	pCi/g		901.1	11/28/05:S222	901.1	12/05/2005:A00
Radio Chemistry G:1							
Gross Alpha	11.8 ± 4.52	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01
Gross Beta	15.0 ± 3.26	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Lab ID : SP 511999-15
Customer ID: 2-21804

Sampled On : October 31, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : G13-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.24 ± 0.354	pCi/g		901 I	11/28/05:S222	901 I	12/05/2005:A00
Bismuth - 212	0.899 ± 0.571	pCi/g		901 I	11/28/05:S222	901 I	12/05/2005:A00
Bismuth - 214	0.976 ± 0.213	pCi/g		901 I	11/28/05:S222	901 I	12/05/2005:A00
Cesium - 137	0.262 ± 0.0806	pCi/g		901 I	11/28/05:S222	901 I	12/05/2005:A00
Lead - 212	1.18 ± 0.212	pCi/g		901 I	11/28/05:S222	901 I	12/05/2005:A00
Lead - 214	1.08 ± 0.200	pCi/g		901 I	11/28/05:S222	901 I	12/05/2005:A00
Potassium - 40	20.8 ± 5.64	pCi/g		901 I	11/28/05:S222	901 I	12/05/2005:A00
Radio Chemistry G:1							
Gross Alpha	11.5 ± 4.56	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01
Gross Beta	8.38 ± 2.78	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-16
Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : October 31, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : H5-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Bismuth - 212	0.457 ± 0.451	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Bismuth - 214	0.756 ± 0.175	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Cesium - 137	0.0889 ± 0.0442	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Lead - 212	1.22 ± 0.207	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Lead - 214	1.01 ± 0.181	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Potassium - 40	18.8 ± 5.11	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Radio Chemistry G:1							
Gross Alpha	16.6 ± 3.70	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01
Gross Beta	16.3 ± 2.43	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-17

Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 27, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : I2-N
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.887 ± 0.280	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Bismuth - 212	0.494 ± 0.445	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Bismuth - 214	0.712 ± 0.172	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Cesium - 137	0.260 ± 0.0728	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Lead - 212	0.918 ± 0.172	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Lead - 214	0.903 ± 0.171	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Potassium - 40	16.2 ± 4.46	pCi/g		901.1	11/28/05:S222	901.1	12/06/2005:A00
Radio Chemistry G:1							
Gross Alpha	38.1 ± 8.01	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01
Gross Beta	29.1 ± 4.53	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01

MCL = Maximum Contaminat Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-18

Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 27, 2005-00:00

Sampled By :

Received On: November 11, 2005-10:00

Matrix : Solid

Description : I4-S
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.813 ± 0.246	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Bismuth - 212	0.924 ± 0.514	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Bismuth - 214	0.961 ± 0.203	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Cesium - 137	0.0316 ± 0.0340	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Lead - 212	0.857 ± 0.163	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Lead - 214	1.09 ± 0.189	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Potassium - 40	17.0 ± 4.63	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Radio Chemistry G:1							
Gross Alpha	41.3 ± 8.26	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01
Gross Beta	49.1 ± 5.48	pCi/g		9310	11/15/05:S207	9310	11/23/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-19

Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : October 31, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : I15 W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.39 ± 0.375	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Bismuth - 212	0.569 ± 0.554	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Bismuth - 214	1.10 ± 0.233	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Cesium - 137	0.187 ± 0.0668	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Lead - 212	1.39 ± 0.236	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Lead - 214	1.12 ± 0.200	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Potassium - 40	21.1 ± 5.72	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Radio Chemistry G:1							
Gross Alpha	6.95 ± 2.63	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01
Gross Beta	9.56 ± 1.94	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-20
Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 27, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : J4-N
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.15 ± 0.324	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Bismuth - 212	0.722 ± 0.576	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Bismuth - 214	1.14 ± 0.239	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Cesium - 137	0.0930 ± 0.0481	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Lead - 212	1.22 ± 0.216	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Lead - 214	1.21 ± 0.208	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Potassium - 40	20.6 ± 5.59	pCi/g		901 1	11/28/05:S222	901 1	12/06/2005:A00
Radio Chemistry G:1							
Gross Alpha	21.9 ± 5.88	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01
Gross Beta	19.9 ± 3.77	pCi/g		9310	11/15/05:S207	9310	11/28/2005:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Lab ID : SP 511999-21
Customer ID: 2-21804

Sampled On : October 27, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : M5-N
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.833 ± 0.203	pCi/g		901.1	12/08/05:S222	901.1	12/08/2005:A00
Bismuth - 212	0.983 ± 0.496	pCi/g		901.1	12/08/05:S222	901.1	12/08/2005:A00
Cesium - 137	0.0434 ± 0.0340	pCi/g		901.1	12/08/05:S222	901.1	12/08/2005:A00
Lead - 212	1.28 ± 0.197	pCi/g		901.1	12/08/05:S222	901.1	12/08/2005:A00
Lead - 214	1.17 ± 0.166	pCi/g		901.1	12/08/05:S222	901.1	12/08/2005:A00
Potassium - 40	26.5 ± 3.79	pCi/g		901.1	12/08/05:S222	901.1	12/08/2005:A00
Radio Chemistry G:1							
Gross Alpha	12.8 ± 4.75	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01
Gross Beta	17.8 ± 3.46	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Lab ID : SP 511999-22
Customer ID: 2-21804

Sampled On : October 31, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : M10-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.775 ± 0.237	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Bismuth - 212	0.711 ± 0.550	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Cesium - 137	0.377 ± 0.0884	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 212	1.73 ± 0.278	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 214	1.56 ± 0.223	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Potassium - 40	24.0 ± 3.72	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Radio Chemistry G:1							
Gross Alpha	15.9 ± 5.43	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01
Gross Beta	15.0 ± 3.35	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-23

Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : October 28, 2005-00:00

Sampled By :

Received On: November 11, 2005-10:00

Matrix : Solid

Description : N6-S
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.939 ± 0.229	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A09
Bismuth - 212	0.747 ± 0.513	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Bismuth - 214	1.16 ± 0.170	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Cesium - 137	0.0550 ± 0.0543	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 212	1.77 ± 0.262	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 214	1.59 ± 0.207	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Potassium - 40	28.1 ± 4.09	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Radio Chemistry G:1							
Gross Alpha	13.2 ± 5.09	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01
Gross Beta	26.3 ± 4.01	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-24
Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 28, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : N8-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.48 ± 0.292	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Bismuth - 212	1.07 ± 0.680	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Bismuth - 214	1.36 ± 0.204	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Cesium - 137	0.378 ± 0.0811	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 212	2.76 ± 0.361	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 214	1.63 ± 0.230	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Potassium - 40	33.7 ± 4.85	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Radio Chemistry G:1							
Gross Alpha	17.8 ± 5.34	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01
Gross Beta	17.5 ± 3.53	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Lab ID : SP 511999-25
Customer ID: 2-21804

Sampled On : October 28, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : K6-S
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.16 ± 0.325	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Bismuth - 212	1.30 ± 0.637	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Bismuth - 214	0.661 ± 0.157	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Cesium - 137	0.0965 ± 0.0538	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 212	1.13 ± 0.200	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 214	0.625 ± 0.149	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Potassium - 40	19.5 ± 5.32	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Radio Chemistry G:1							
Gross Alpha	16.2 ± 5.43	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01
Gross Beta	17.5 ± 3.52	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Description : K7-N
Project : Sterling

Lab ID : SP 511999-26
Customer ID: 2-21804

Sampled On : October 27, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Cesium - 137	0.0408 ± 0.0293	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 212	1.21 ± 0.205	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 214	1.04 ± 0.193	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Potassium 40	22.8 ± 6.12	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Radio Chemistry G:1							
Gross Alpha	7.83 ± 4.08	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01
Gross Beta	19.6 ± 3.51	pCi/g		9310	12/08/05:S207	9310	12/12/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-27

Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 27, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : P3-N
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.530 ± 0.187	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Bismuth - 214	0.648 ± 0.147	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Cesium - 137	0.0500 ± 0.0310	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 212	0.693 ± 0.132	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Lead - 214	0.600 ± 0.132	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Potassium - 40	21.3 ± 5.71	pCi/g		901.1	12/08/05:S222	901.1	12/09/2005:A00
Radio Chemistry G:1							
Gross Alpha	12.8 ± 4.63	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01
Gross Beta	18.2 ± 3.48	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Lab ID : SP 511999-28
Customer ID: 2-21804

Sampled On : October 28, 2005-00:00
Sampled By :
Received On : November 11, 2005-10:00
Matrix : Solid

Description : P6-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.22 ± 0.345	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Bismuth - 212	0.929 ± 0.578	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Bismuth - 214	1.15 ± 0.245	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Cesium - 137	0.0989 ± 0.0535	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Lead - 212	1.30 ± 0.228	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Lead - 214	1.26 ± 0.234	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Potassium - 40	21.2 ± 5.78	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Radio Chemistry G:1							
Gross Alpha	15.6 ± 4.94	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01
Gross Beta	17.0 ± 3.47	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Lab ID : SP 511999-29
Customer ID: 2-21804

Sampled On : October 28, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : P7-S
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Bismuth - 212	0.559 ± 0.426	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Bismuth - 214	1.66 ± 0.321	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Cesium - 137	0.0356 ± 0.0303	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Lead - 212	1.03 ± 0.187	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Lead - 214	1.68 ± 0.276	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Potassium - 40	15.0 ± 4.16	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Radio Chemistry G:1							
Gross Alpha	21.9 ± 6.07	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01
Gross Beta	20.3 ± 3.80	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-30
Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : October 27, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : P9-N
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium 228	0.887 ± 0.287	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Bismuth 212	1.27 ± 0.648	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Bismuth 214	1.14 ± 0.242	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Cesium 137	0.128 ± 0.0523	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Lead 212	1.21 ± 0.213	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Lead 214	1.01 ± 0.198	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Potassium 40	20.7 ± 5.65	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Radio Chemistry G:1							
Gross Alpha	9.46 ± 4.14	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01
Gross Beta	20.6 ± 3.57	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ENVIRONMENTAL



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-31
Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : October 28, 2005-00:00
Sampled By :
Received On: November 11, 2005-10:00
Matrix : Solid

Description : R9-W
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:I							
Actinium - 228	0.482 ± 0.208	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Bismuth - 212	0.346 ± 0.407	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Bismuth - 214	0.764 ± 0.180	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Cesium - 137	0.0360 ± 0.0348	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Lead - 212	0.924 ± 0.172	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Lead - 214	0.771 ± 0.164	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Potassium - 40	14.2 ± 4.00	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Radio Chemistry G:I							
Gross Alpha	14.2 ± 5.07	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01
Gross Beta	14.7 ± 3.30	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

December 30, 2005

Lab ID : SP 511999-32

Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : October 25, 2005-00:00

Sampled By :

Received On: November 11, 2005-10:00

Matrix : Solid

Description : Debris P6
Project : Sterling

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.714 ± 0.240	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Bismuth - 214	1.82 ± 0.346	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Cesium - 137	0.0350 ± 0.0335	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Lead - 212	0.803 ± 0.158	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Lead - 214	1.80 ± 0.289	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Potassium - 40	13.6 ± 3.84	pCi/g		901.1	12/08/05:S222	901.1	12/12/2005:A00
Radio Chemistry G:1							
Gross Alpha	28.4 ± 6.89	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01
Gross Beta	17.4 ± 3.74	pCi/g		9310	12/08/05:S207	9310	12/13/2005:S01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ENVIRONMENTAL



December 30, 2005
ANALYTICAL CHEMISTS
 Allwest Remediation

Lab ID : SP 511999
 Customer : 2-21804

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Cesium - 137	901 I	11/28/2005:A	00-CCV	pCi/g	14 17	87.0%	75-125	
		12/08/2005:A	00-CCV	pCi/G	14 17	76.2%	75-125	
Gross Alpha	9310	11/15/2005:S207	Blank	pCi/g		ND	<10	
			LCS	pCi/g	106 2	77.5%	75-125	426
			BS	pCi/g	106 2	66.3%	75-125	426
			BSD	pCi/g	106 2	61.0%	75-125	
		BSRPD	pCi/g		8.3%	≤25		
		12/08/2005:S207	Blank	pCi/g		ND	<10	
			LCS	pCi/g	106 2	79.5%	75-125	426
			BS	pCi/g	106 2	63.6%	75-125	426
BSD	pCi/g		106 2	65.4%	75-125			
BSRPD	pCi/g		2.9%	≤25				
Alpha-α	9310	11/22/2005:A	00-CCB	cpm		0.10	0747 ± .053	
			00-CCV	cpm	12550	41.6%	41.2 ± 5.0	
		12/12/2005:S	00-CCB	cpm		0.080	0747 ± .053	
			00-CCV	cpm	12530	41.2%	41.2 ± 5.0	
Gross Beta	9310	11/15/2005:S207	Blank	pCi/g		ND	<40	
			LCS	pCi/g	223 7	112%	75-125	
			BS	pCi/g	223 7	102%	75-125	
			BSD	pCi/g	223 7	109%	75-125	
		BSRPD	pCi/g		6.5%	≤25		
		12/08/2005:S207	Blank	pCi/g		ND	<40	
			LCS	pCi/g	223 4	112%	75-125	
			BS	pCi/g	223 4	111%	75-125	
BSD	pCi/g		223 4	113%	75-125			
BSRPD	pCi/g		2.1%	≤25				
Beta-β	9310	11/22/2005:A	00-CCB	cpm		0.42	.291 ± .13	
			00-CCV	cpm	12550	89.8%	88.6 ± 5.0	
		12/12/2005:S	00-CCB	cpm		0.38	.291 ± .13	
			00-CCV	cpm	12530	88.1%	88.6 ± 5.0	

Explanations

426 Blank Spike (BS) not within Acceptance Range (AR) Data was accepted based on the LCS or CCV recovery.

Definitions

- Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples
- LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery
- BS/BSD : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery
- CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria
- CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria
- ND : Non-detect - Result was below the DQO listed for the analyte
- DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

51000

CLIENT Allwest Remediation
 ADDRESS 1201 N BARSTEN WAY
ANAHEIM CA 92806
 PROJECT NAME STERLING

PROJECT MANAGER Richard Scott
 PHONE NUMBER 714 287-1201
 SAMPLES: (Signature) [Signature]

Lab Use Only:
 Samples Intact Yes ___ No ___
 County Seals Intact Yes ___ No ___
 Sample Ambient Cooled ___ Frozen ___
 Same Day 24 Hr. ___
 Regular 48 Hr. ___

SAMPLE NUMBER	LOCATION DESCRIPTION	DATE	TIME	SAMPLE TYPE			NO OF CNTNRS	SUSP. CONTAM.	TESTS REQUIRED
				WATER	AIR	SOLID			
A2-N		10/21/05			X	1		TOTAL ALPHA	
A4-W		10/21/05						TOTAL BETA	
B5-S		10/21/05						TOTAL GAMMA	
B7-W		10/21/05							
E16-W		10/21/05							
B15-W		10/21/05							
C4-N		10/21/05							
C10-W		10/21/05							
D1-N		10/21/05							
D2-S		10/21/05							
D6-W		10/21/05							
F4-N		10/21/05							
G7-S		10/21/05							

Relinquished by: (Signature) [Signature] Date/Time 11/19/05
 Received by: (Signature) [Signature] Date/Time 11/19/05
 Relinquished for: (Signature) [Signature] Laboratory for analysis: [Signature] Date/Time 11/19/05

Special Instructions:
12-28-05: for Richard Scott please pdf results to
ivona.deleon@allwest.com or allwestrem.com 11.17.

DISTRIBUTION: White with report. Yellow to AL, Pink to Courier

I hereby authorize the performance of the above indicated work.



ASSOCIATED LABORATORIES
 896-N-Beteveie • Orange, CA 92868
 (714) 774-6900 • Fax: (714) 598-1200

CHAIN OF CUSTODY RECORD
 Date 11/9/05 Page 2 of 3

511999

CLIENT Allurst Remediation
 ADDRESS 1201 N BARSTEN WAY
ANAHEIM CA 92806
 PROJECT NAME

PROJECT MANAGER P. SCOTT
 PHONE NUMBER 714 237-7011
 SAMPLERS (Signature) [Signature]

Lab Use Only:
 Samples Intact Yes ___ No ___
 County Seals Intact Yes ___ No ___
 Sample Ambient Cooled ___ Frozen ___
 Same Day 24 Hr. ___
 Regular 48 Hr. ___

SAMPLE NUMBER	LOCATION DESCRIPTION	DATE	TIME	SAMPLE TYPE			NO OF CONTNRS	SUSP. CONTAM.	TESTS REQUIRED
				WATER	AIR	SOLID			
G-9-W		10/21/05				X	1		TOTAL ALPHA
G-13-W		10/21/05							TOTAL BETA
H-5-W		10/21/05							TOTAL GAMMA
I-2-N		10/21/05							
I-4-S		10/21/05							
I-15-W		10/21/05							
S-4-N		10/21/05							
M-5-N		10/21/05							
M-10-W		10/21/05							
N-6-S		10/21/05							
N-8-W		10/21/05							
K-6-S		10/21/05							
K-7-N		10/21/05							

Received by: (Signature) [Signature] Date/Time: 11/05
 Received by Laboratory for analysis (Signature) [Signature] Date/Time: 11/05
 Special Instructions:

I hereby authorize the performance of the above indicated work.

DISTRIBUTION: White with report. Yellow to AL, Pink to Courier

511 9999

CLIENT ALLWEST REMEDIATION
 ADDRESS 1701 N BARSTEN WAY
ANAHEIM CA 92806
 PROJECT NAME

PROJECT MANAGER R. Scoff
 PHONE NUMBER 714 237 1201
 SAMPLES (Signature)

Lab Use Only:
 Samples Intact Yes ___ No ___
 County Seals Intact Yes ___ No ___
 Sample Ambient Cooled ___ 24 Hr. ___
 Same Day ___ 48 Hr. ___
 Regular ___

SAMPLE NUMBER	LOCATION DESCRIPTION	DATE	TIME	SAMPLE TYPE			NO OF CONTNRS	SUSP. CONTAM.	TESTS REQUIRED
				WATER	AIR	SOLID			
77 P3-N		10/17/05			X		1		TOTAL ALPHA
78 P6-W		10/24/05							TOTAL BETA
79 P7-S		10/24/05							TOTAL GAMMA
80 P9-N		10/24/05							
81 R9-W		10/24/05							
82 Debi P6		10/25/05							

Received by: (Signature) _____ Date/Time: _____
 Received by Laboratory for analysis: (Signature) _____ Date/Time: 11/05/05 1000
 Special Instructions:

I hereby authorize the performance of the above indicated work.

DISTRIBUTION: White with report. Yellow to AL, Pink to Courier

Santa Paula - Condition Upon Receipt (Attach to COC)

Sample Receipt:

1. Number of ice chests/packages received: _____
Note as OTC if received over the counter unpackaged
2. Were samples received in a chilled condition? Temp: _____
Acceptable is above freezing to 6° C. Also acceptable is received on ice (ROI) for the same day of sampling or received at room temperature (RRT) if sampled within one hour of receipt. Client contact for temperature failures must be documented below. If many packages are received at one time check for tests/H T 's/rushes/Bacti's to prioritize further review. Please notify Microbiology personnel immediately of bacti samples received
3. Do the number of bottles received agree with the COC? Yes No N/A
4. Were samples received intact? (i.e. no broken bottles, leaks etc) Yes No
5. Were sample custody seals intact? N/A Yes No

Sign and date the COC, obtain LIMS sample numbers, select methods/tests and print labels.

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
4. Were all analyses within holding times at time of receipt? Yes No
5. Have rush or project due dates been checked and accepted? N/A Yes No

Attach labels to the containers and include a copy of the COC for lab delivery.

Sample Receipt, Login and Verification completed by (initials): _____

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2-21804)

Allwest Remediation

SP 0511999

SRP-11/11/2005-10:42:15

number here



ANALYTICAL CHEMISTS

January 12, 2006

Lab ID : SP 513327

Customer : 2021804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Laboratory Report

Introduction: This report package contains total of 12 pages divided into three sections:

- Case Narrative (2 Pages): An overview of the work performed at FGL.
- Chemical Results (9 Pages): Results for each sample submitted.
- Quality Control (1 Page): Supporting Quality Control (QC) results

This report package pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab Sample ID #	Matrix
LCR-8	11/29/2005	12/21/2005	SP 513327-01	Sld
LCR-16	11/29/2005	12/21/2005	SP 513327-02	Sld
LCR-24	11/29/2005	12/21/2005	SP 513327-03	Sld
LCR-32	12/01/2005	12/21/2005	SP 513327-04	Sld
LCR-40	12/01/2005	12/21/2005	SP 513327-05	Sld
LCR-46	12/01/2005	12/21/2005	SP 513327-06	Sld
NDR-5	12/01/2005	12/21/2005	SP 513327-07	Sld
CONC-1	12/19/2005	12/21/2005	SP 513327-08	Sld
CONC-2	12/19/2005	12/21/2005	SP 513327-09	Sld

Sampling and Receipt Information: All samples were received, prepared and analyzed within the method specified holding times. All samples were received at room temperature. All samples were checked for pH if acid or base preservation required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Forms.

Quality Control: All samples were prepared and analyzed according to the following tables:

Radio Chemistry QC

901 1	01/05/2006:A - GS201 All analysis quality controls are within established criteria.
9310	01/05/2006:A - GP218 All analysis quality controls are within established criteria
	01/05/2006:A - GP219 All analysis quality controls are within established criteria

Case narrative continued on next page.

January 12, 2006

Lab ID : SP 513327
Customer : 2021804

Allwest Remediation

Certification: I certify that this data package is in compliance with NELAC Standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following signature

FGL ENVIRONMENTAL



Kelly A. Dunnahoo, B.S.
Laboratory Director

KAD:gma



ANALYTICAL CHEMISTS

January 12, 2006

Lab ID : SP 513327-01
Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : November 29, 2005-00:00
Sampled By : Ivan De Leon
Received On : December 21, 2005-10:00
Matrix : Solid

Description : LCR-8
Project : Sterling-Contex (05-8520 E1)

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.747 ± 0.216	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Bismuth - 212	0.593 ± 0.487	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Bismuth - 214	0.744 ± 0.150	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Lead - 212	1.38 ± 0.261	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Lead - 214	1.40 ± 0.209	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Potassium - 40	25.1 ± 2.30	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Radio Chemistry G:1							
Gross Alpha	3.62 ± 2.84	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01
Gross Beta	6.58 ± 2.39	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

January 12, 2006

Lab ID : SP 513327-02

Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : November 29, 2005-00:00
Sampled By : Ivan De Leon
Received On: December 21, 2005-10:00
Matrix : Solid

Description : LCR-16
Project : Sterling-Contex (05-8520 E1)

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.801 ± 0.199	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Bismuth - 214	0.738 ± 0.151	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Cesium - 137	0.0368 ± 0.0313	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Lead - 212	1.41 ± 0.258	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Lead - 214	1.32 ± 0.207	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Potassium - 40	25.2 ± 2.30	pCi/g		901.1	01/05/06:S222	901.1	01/09/2006:A00
Radio Chemistry G:1							
Gross Alpha	6.06 ± 3.61	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01
Gross Beta	9.96 ± 2.76	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

January 12, 2006

Lab ID : SP 513327-03
Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : November 29, 2005-00:00
Sampled By : Ivan De Leon
Received On : December 21, 2005-10:00
Matrix : Solid

Description : LCR-24
Project : Sterling-Contex (05-8520 E1)

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.221 ± 0.169	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Bismuth - 212	0.661 ± 0.495	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Bismuth - 214	0.780 ± 0.171	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Cesium - 137	0.0388 ± 0.0372	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Lead - 212	1.78 ± 0.303	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Lead - 214	1.39 ± 0.221	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Potassium - 40	22.6 ± 2.28	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Radio Chemistry G:1							
Gross Alpha	11.5 ± 4.56	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01
Gross Beta	11.0 ± 2.99	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



ANALYTICAL CHEMISTS

January 12, 2006

Lab ID : SP 513327-04
Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : December 1, 2005-00:00
Sampled By : Ivan De Leon
Received On: December 21, 2005-10:00
Matrix : Solid

Description : LCR-32
Project : Sterling-Contex (05-8520 E1)

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.25 ± 0.340	pCi/g		901 1	01/05/06:S222	901 1	01/10/2006:A00
Bismuth - 212	0.877 ± 0.651	pCi/g		901 1	01/05/06:S222	901 1	01/10/2006:A00
Bismuth - 214	2.62 ± 0.375	pCi/g		901 1	01/05/06:S222	901 1	01/10/2006:A00
Cesium - 137	0.0689 ± 0.0504	pCi/g		901 1	01/05/06:S222	901 1	01/10/2006:A00
Lead - 212	2.51 ± 0.431	pCi/g		901 1	01/05/06:S222	901 1	01/10/2006:A00
Lead - 214	4.24 ± 0.514	pCi/g		901 1	01/05/06:S222	901 1	01/10/2006:A00
Potassium - 40	19.7 ± 2.67	pCi/g		901 1	01/05/06:S222	901 1	01/10/2006:A00
Radio Chemistry G:1							
Gross Alpha	19.0 ± 3.64	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01
Gross Beta	10.3 ± 2.19	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

January 12, 2006

Lab ID : SP 513327-05
Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : December 1, 2005-00:00
Sampled By : Ivan De Leon
Received On: December 21, 2005-10:00
Matrix : Solid

Description : LCR-40
Project : Sterling-Contex (05-8520 E1)

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.940 ± 0.242	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Bismuth - 212	0.735 ± 0.548	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Bismuth - 214	1.04 ± 0.192	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Lead - 212	2.24 ± 0.355	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Lead - 214	1.75 ± 0.261	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Potassium - 40	21.7 ± 2.28	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Radio Chemistry G:1							
Gross Alpha	13.6 ± 5.27	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01
Gross Beta	11.8 ± 3.09	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ENVIRONMENTAL



ANALYTICAL CHEMISTS

January 12, 2006

Lab ID : SP 513327-06
Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : December 1, 2005-00:00
Sampled By : Ivan De Leon
Received On : December 21, 2005-10:00
Matrix : Solid

Description : LCR-46
Project : Sterling-Contex (05-8520 E1)

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.902 ± 0.216	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Bismuth - 212	0.728 ± 0.453	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Bismuth - 214	0.673 ± 0.144	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Cesium - 137	0.0585 ± 0.0365	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Lead - 212	1.58 ± 0.286	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Lead - 214	1.46 ± 0.223	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Potassium - 40	25.0 ± 2.32	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Radio Chemistry G:1							
Gross Alpha	10.8 ± 4.84	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01
Gross Beta	10.8 ± 2.96	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

January 12, 2006

Lab ID : SP 513327-07
Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : December 1, 2005-00:00
Sampled By : Ivan De Leon
Received On : December 21, 2005-10:00
Matrix : Solid

Description : NDR-5
Project : Sterling-Contex (05-8520 E1)

Sample Results - Radio

Constituents	Result ± Error	Units	MCI	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	0.762 ± 0.206	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Bismuth - 212	0.465 ± 0.388	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Bismuth - 214	0.614 ± 0.146	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Cesium - 137	0.0503 ± 0.0351	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Lead - 212	1.83 ± 0.288	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Lead - 214	1.21 ± 0.198	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Potassium - 40	27.2 ± 2.45	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Radio Chemistry G:1							
Gross Alpha	10.6 ± 4.92	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01
Gross Beta	18.4 ± 3.51	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

January 12, 2006

Lab ID : SP 513327-08
Customer ID: 2-21804

Allwest Remediation
1201 N Barsten Way
Anaheim, CA 92806

Sampled On : December 19, 2005-00:00
Sampled By : Ivan De Leon
Received On : December 21, 2005-10:00
Matrix : Solid

Description : CONC-1
Project : Sterling-Contex (05-8520 E1)

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Actinium - 228	1.10 ± 0.270	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Lead - 212	2.12 ± 0.374	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Lead - 214	1.22 ± 0.238	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Potassium - 40	26.3 ± 2.73	pCi/g		901.1	01/05/06:S222	901.1	01/10/2006:A00
Radio Chemistry G:1							
Gross Alpha	6.39 ± 2.55	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01
Gross Beta	10.7 ± 1.99	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (I) Cool 4°C



ANALYTICAL CHEMISTS

January 12, 2006

Lab ID : SP 513327-09
Customer ID: 2-21804

Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Sampled On : December 19, 2005-00:00
Sampled By : Ivan De Leon
Received On : December 21, 2005-10:00
Matrix : Solid

Description : CONC-2
Project : Sterling-Contex (05-8520 E1)

Sample Results - Radio

Constituents	Result ± Error	Units	MCL	Preparation		Analysis	
				Method	Date/ID	Method	Date/ID
Gamma Isotopic G:1							
Bismuth - 214	0.483 ± 0.143	pCi/g		901 1	01/05/06:S222	901 1	01/11/2006:A00
Cesium - 137	0.0578 ± 0.0360	pCi/g		901 1	01/05/06:S222	901 1	01/11/2006:A00
Lead - 212	1.51 ± 0.276	pCi/g		901 1	01/05/06:S222	901 1	01/11/2006:A00
Lead - 214	1.12 ± 0.197	pCi/g		901 1	01/05/06:S222	901 1	01/11/2006:A00
Potassium - 40	18.2 ± 2.10	pCi/g		901 1	01/05/06:S222	901 1	01/11/2006:A00
Radio Chemistry G:1							
Gross Alpha	0.0804 ± 1.98	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01
Gross Beta	7.70 ± 1.75	pCi/g		9310	01/03/05:S207	9310	01/06/2006:A01

MCL = Maximum Contaminant Level Containers: (G) Glass Jar Preservatives: (1) Cool 4°C



January 12, 2006
ANALYTICAL CHEMISTS
Allwest Remediation

Lab ID : SP 513327
Customer : 2-21804

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Cesium - 137	901 1	01/05/2006:A	00-CCV	pCi/g	14.17	109%	75-125	
Alpha-α	9310	01/05/2006:A	00-CCB	cpm		ND	073 ± 066	
			00-CCV	cpm	12500	40.7%	41.0 ± 5.0	
Beta-β	9310		00-CCB	cpm		0.30	283 ± 15	
			00-CCV	cpm	12500	88.8%	88.9 ± 5.0	

Definitions

- CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria
- CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria
- ND : Non detect - Result was below the DQO listed for the analyte
- DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.



CHAIN OF CUSTODY
AND ANALYSIS REQUEST DOCUMENT

TEST DESCRIPTION AND ANALYSES REQUESTED

Date Number
5 5007

Client: ALBERTS REMEDIATION
Customer Number:
Address: 1201 N BRISTOL WAY
ANAHEIM, CA 92806
Phone: (714) 237-1201 Fax: (714) 237-1202
Contact Person: RICHARD WATT
Project Name: STEELWALK - CANTER
Purchase Order Number: 05-8520 E
Quote Number:

Sampler(s): WND DE LEON

Sampling Fee: _____ Pickup Fee: _____
Compositor Setup Date: _____ Time: _____

Sample Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite (C) Grab (G)	Number of Containers	Type of Container: (G) Glass (P) Plastic (V) VOA (M) Metal Tube	Potable (P) Non Potable (NP) Air Water (AW)	(SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water	(S) Soil (SLG) Sludge (SLD) Solid (O) Oil	BacT: (Sys) System (SRC) Source (W) Waste	BacT: (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace	(LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce	Preservative: (1) NaOH + ZnAc, (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other	Remarks
1	LCA-8	11/29/05		6	1	P							X	
2	LCA-11	"		"	1	"							X	
3	LCA-24	"		"	1	"							X	
4	LCA-32	12/1/05		"	1	"							X	
5	LCA-40	"		"	1	"							X	
6	LCA-46	"		"	1	"							X	
7	NDR-5	"		"	1	"							X	
8	COHC-1	12/19/05		"	1	"							X	

Received By: _____ Date: 12/28/05
Retrieved By: _____ Date: _____
Retrieved By: _____ Date: _____
Retrieved By: _____ Date: _____



CHAIN OF CUSTODY
AND ANALYSIS REQUEST DOCUMENT

TEST DESCRIPTION AND ANALYSES REQUESTED

Lab Number: 10550

Client: ALJES KORNAROW
 Address: _____
 Phone: _____ Fax: _____
 Contact Person: _____
 Project Name: _____
 Purchase Order Number: _____
 Quote Number: _____

Sampler(s): _____
 Sampling Fee: _____ Pickup Fee: _____
 Compositor Setup Date: _____ Time: _____

Sample Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composite (C) Grab (G)	Number of Containers	Type of Containers: (G) Glass (P) Plastic (V) VOA (MT) Metal Tube	Potable (P) Non Potable (NP) Air Water (AW)	(SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water	(S) Soil (SLG) Sludge (SLD) Solid (O) O2	Bact: (Sys) System (SRC) Source (W) Waste	Bact: (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace	(LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce	Preservative: (1) NaOH + ZnAc, (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other	Remarks
Cont-2		2/19/07		G	1								X ALPHA BETA / GAMMA COUNT	

Relinquished Date: _____ Time: _____
 Received By: _____
 Relinquished Date: _____ Time: _____
 Received By: _____

[Handwritten signatures and dates]

May 3, 2006

Mr. Richard Scott
Allwest Remediation
1201 N. Barsten Way
Anaheim, CA 92806

Dear Mr. Scott:

On April 26, 2006, 10 soil samples were received for analysis at the Sanford Cohen and Associates (SC&A) Southeastern Environmental Laboratory. The samples were assigned Laboratory Report Identification Code 6744. The samples were requested to be reported within 10 days of receipt. Enclosed is the Sample Data Package containing the results of the analyses of these samples.

If you have any questions please do not hesitate to call.

Sincerely,


Edwin L. Sensintaffar
Vice President

COVER PAGE

Sanford Cohen & Associates
Southeastern Environmental Laboratory
1000 Monticello Court
Montgomery, Alabama 36117

Laboratory Code: SCA

California Certification No 05238CA

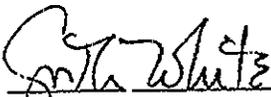
Laboratory Report Identification Code: 6744

Sample Matrix: Soil

Site Sample Number	Laboratory Sample Number
A-4-W	AWR06-6744-01
D-6-W	AWR06-6744-02
G-9-W	AWR06-6744-03
P-6-W	AWR06-6744-04
G-13-W	AWR06-6744-05
R-9-W	AWR06-6744-06
I-4-S	AWR06-6744-07
N-6-S	AWR06-6744-08
A-2-N	AWR06-6744-09
M-5-N	AWR06-6744-10

Comments: Other than the omission of the collection date and time from the sample container labels, there were no problems encountered with sample receiving.

"I certify that this sample data package is in compliance with contract requirements, both technically and for completeness. Release of the data contained in this hard-copy sample data package has been authorized by the Vice President or the Vice President's designee, as verified by the following signature."



Signature

 Edwin L. Sensintaffar

Name

Vice President

Title

05/03/2006

Date

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4	Case Narrative	2
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CASE NARRATIVE

California Certification No. 05238CA

Laboratory Report Identification Number: 6744

May 3, 2006

I. Introduction

On April 26, 2006, 10 soil samples were received for analysis at the Sanford Cohen and Associates (SC&A) Southeastern Environmental Laboratory, located in Montgomery, Alabama. The samples were requested to be reported within 10 days of receipt. The samples were analyzed in accordance with the Sanford Cohen and Associates, Southeastern Environmental Laboratory, Laboratory Quality Assurance Plan.

II. Analytical Methodology

The radioanalytical results reported for the sample include the site and laboratory sample identification numbers, collection date, method of analysis, and the quality control samples that were analyzed concurrently. The samples were analyzed by the following methods:

Radionuclide	Method Number	Method Name	Counting Method
Sr-90	SRW01	Eichrom Industries Extraction Chromatography	Gas Proportional Counting
Plutonium	ACW03	Eichrom Industries Extraction Chromatography	Alpha Spectrometry

III. Analytical Results

Deficiencies

There were no deficiencies to report.

Matrix Interferences

There were no indications of matrix interference.

Detection Limits

The required detection limits (RDL) were met for all sample analyses.

III. Analytical Results (continued)

Re-analysis

There were no re-analyses.

Deviations from Protocols

There were no deviations from the written protocols and analytical methods.

Contacts with the CTR

There were no contacts with the Technical Representative regarding these samples.

IV. Quality Control

Quality Control Sample Information

Site Sample Number	Laboratory Sample Number	Quality Control Type
Laboratory Type II Water	SCAQC-6744-PB1	Preparation Blank
Laboratory Type II Water	SCAQC-6744-LC1	Laboratory Control
A-4-W	SCAQC-6744-LD1	Laboratory Duplicate

The analytical results of all quality control samples met the acceptance criteria specified in SC&A's Laboratory Quality Assurance Plan.

Sample and QC Sample Results Summary

PARAGON ANALYTICS
Radiochemistry Data Package

3

Section 3

**INDIVIDUAL
SAMPLE RESULTS**

000008

Sanford Cohen & Associates
Southeastern Environmental Laboratory

Radioanalytical Results

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>A-4-W</u>	Collection Date: <u>10/31/2005</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID:	Batch Number: <u>6744</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ICW03	PU-238	AWR06-6744-01	05/03/06 08:33	0.004	0.009	0.009	0.012
ACW03	PU-239/240	AWR06-6744-01	05/03/06 08:33	0.006	0.014	0.014	0.023
SRW01	SR-90	AWR06-6744-01	05/02/06 18:03	0.586	0.500	0.504	0.778

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

Sanford Cohen & Associates
Southeastern Environmental Laboratory

Radioanalytical Results

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>D-6-W</u>	Collection Date: <u>10/31/2005</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID:	Batch Number: <u>6744</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-238	AWR06-6744-02	05/03/06 08:34	0.000	0.000	0.000	0.012
ACW03	PU-239/240	AWR06-6744-02	05/03/06 08:34	0.005	0.009	0.009	0.012
SRW01	SR-90	AWR06-6744-02	05/02/06 18:03	0.192	0.413	0.413	0.715

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

Sanford Cohen & Associates
Southeastern Environmental Laboratory

Radioanalytical Results

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>G-9-W</u>	Collection Date: <u>10/31/2005</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID:	Batch Number: <u>6744</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ICW03	PU-238	AWR06-6744-03	05/03/06 08:35	0.000	0.000	0.000	0.011
ACW03	PU-239/240	AWR06-6744-03	05/03/06 08:35	0.008	0.012	0.012	0.011
SRW01	SR-90	AWR06-6744-03	05/02/06 18:04	0.824	0.489	0.495	0.703

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

Sanford Cohen & Associates
Southeastern Environmental Laboratory

Radioanalytical Results

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>P-6-W</u>	Collection Date: <u>10/28/2005</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID:	Batch Number: <u>6744</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-238	AWR06-6744-04	05/03/06 08:36	0.000	0.000	0.000	0.010
ACW03	PU-239/240	AWR06-6744-04	05/03/06 08:36	0.012	0.013	0.014	0.010
SRW01	SR-90	AWR06-6744-04	05/02/06 18:04	-0.586	0.439	0.443	0.940

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

Sanford Cohen & Associates
Southeastern Environmental Laboratory

Radioanalytical Results

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>G-13-W</u>	Collection Date: <u>10/31/2006</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID:	Batch Number: <u>6744</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-238	AWR06-6744-05	05/03/06 08:36	-0.003	0.005	0.005	0.023
ACW03	PU-239/240	AWR06-6744-05	05/03/06 08:36	0.026	0.022	0.022	0.012
SRW01	SR-90	AWR06-6744-05	05/02/06 18:04	0.087	0.487	0.487	0.872

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

Sanford Cohen & Associates
Southeastern Environmental Laboratory

Radioanalytical Results

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>R-9-W</u>	Collection Date: <u>10/28/2005</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID:	Batch Number: <u>6744</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-238	AWR06-6744-06	05/03/06 08:36	0.000	0.000	0.000	0.010
ACW03	PU-239/240	AWR06-6744-06	05/03/06 08:36	0.004	0.007	0.008	0.010
SRW01	SR-90	AWR06-6744-06	05/02/06 18:04	-0.183	0.437	0.437	0.843

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

Sanford Cohen & Associates
Southeastern Environmental Laboratory

Radioanalytical Results

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>I-4-S</u>	Collection Date: <u>10/27/2005</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID:	Batch Number: <u>6744</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-238	AWR06-6744-07	05/03/06 08:37	0.002	0.004	0.004	0.020
ACW03	PU-239/240	AWR06-6744-07	05/03/06 08:37	0.002	0.004	0.004	0.020
SRW01	SR-90	AWR06-6744-07	05/02/06 18:04	0.470	0.487	0.490	0.782

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

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Radioanalytical Results

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>N-6-S</u>	Collection Date: <u>10/28/2005</u>	Date Received: <u>4/28/2006 1:00:00</u>
Other Sample ID:	Batch Number: <u>6744</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-238	AWR06-6744-08	05/03/06 08:38	0.002	0.009	0.009	0.021
ACW03	PU-239/240	AWR06-6744-08	05/03/06 08:38	0.016	0.016	0.016	0.011
SRW01	SR-90	AWR06-6744-08	05/02/06 18:04	-0.256	0.371	0.372	0.761

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

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Radioanalytical Results

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>A-2-N</u>	Collection Date: <u>10/27/2005</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID:	Batch Number: <u>6744</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-238	AWR06-6744-09	05/03/06 08:38	-0.003	0.006	0.006	0.025
ACW03	PU-239/240	AWR06-6744-09	05/03/06 08:38	0.002	0.011	0.011	0.025
SRW01	SR-90	AWR06-6744-09	05/02/06 18:04	0.155	0.422	0.422	0.740

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

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Southeastern Environmental Laboratory

Radioanalytical Results

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>M-5-N</u>	Collection Date: <u>10/27/2005</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID:	Batch Number: <u>6744</u>	Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-238	AWR06-6744-10	05/03/06 08:38	0.002	0.009	0.009	0.019
ACW03	PU-239/240	AWR06-6744-10	05/03/06 08:38	0.002	0.008	0.008	0.019
SRW01	SR-90	AWR06-6744-10	05/02/06 18:05	0.064	0.367	0.367	0.665

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

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Radioanalytical Results

Quality Control Sample
Laboratory Control (LC1)

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number: <u>None</u>	Matrix: <u>Soil</u>
Site Sample ID: <u>N/A</u>	Collection Date: <u>4/26/2006 1:00:00 PM</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID: <u>LC1</u>	Laboratory Code: <u>SCA</u>	

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-239/240	SCAQC-6744-LC1	05/03/06 08:32	2.43	0.321	0.583	0.015
SRW01	SR-90	SCAQC-6744-LC1	05/02/06 18:03	39.4	2.21	4.52	0.694

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

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Southeastern Environmental Laboratory

Radioanalytical Results

Quality Control Sample
Duplicate (LD1)

Report Identification Number: S6744

Project Name: <u>Alivest Remediation</u>	Chain-of-Custody Number:	Matrix: <u>Soil</u>
Site Sample ID: <u>A-4-W</u>	Collection Date: <u>10/31/2005</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID: <u>LD1</u>		Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-238	SCAQC-6744-LD1	05/03/06 08:33	0.002	0.010	0.010	0.023
ACW03	PU-239/240	SCAQC-6744-LD1	05/03/06 08:33	0.004	0.009	0.009	0.012
SRW01	SR-90	SCAQC-6744-LD1	05/02/06 18:03	0.499	0.473	0.476	0.747

Laboratory Samples for Duplicates		
Radionuclide	Laboratory Sample ID	Duplicate of Sample ID
SR-90	SCAQC-6744-LD1	AWR06-6744-01
PU-238	SCAQC-6744-LD1	AWR06-6744-01
PU-239/240	SCAQC-6744-LD1	AWR06-6744-01

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

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Southeastern Environmental Laboratory

Radioanalytical Results

Quality Control Sample
Preparation Blank (PB)

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Chain-of-Custody Number: <u>None</u>	Matrix: <u>Soil</u>
Site Sample ID: <u>N/A</u>	Collection Date: <u>4/26/2006 1:00:00 PM</u>	Date Received: <u>4/26/2006 1:00:00</u>
Other Sample ID: <u>PB</u>		Laboratory Code: <u>SCA</u>

Method Number	Radionuclide	Laboratory Sample ID	Analysis Date/Time	Activity (pCi/g)	2 σ Counting Error (pCi/g)	Total Error (pCi/g)	MDA (pCi/g)
ACW03	PU-238	SCAQC-6744-PB1	05/03/06 08:32	0.000	0.000	0.000	0.014
ACW03	PU-239/240	SCAQC-6744-PB1	05/03/06 08:32	0.000	0.000	0.000	0.014
SRW01	SR-90	SCAQC-6744-PB	05/02/06 18:03	0.177	0.397	0.397	0.687

Quality Control Samples				
Radionuclide	Laboratory Control (LC)	Laboratory Duplicate (LD)	Matrix Spike (MS)	Preparation Blank (PB)
Sr	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB
Pu	SCAQC-6744-LC1	SCAQC-6744-LD1		SCAQC-6744-PB1

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Radioanalytical Results

Quality Control Sample Evaluation

Report Identification Number: S6744

Project Name: <u>Allwest Remediation</u>	Laboratory Code: <u>SCA</u>
Matrix: <u>Soil</u>	

Laboratory Control Sample (LC1) Evaluation

Method Number	Radionuclide	Laboratory Sample ID	(CV)	(OV)	Laboratory Control Sample % Recovery (Accuracy)	Number of σ Between CV and OV
			Decay Corrected Activity of Spike Added (pCi/g)	Laboratory Control Sample Activity (pCi/g)		
ACW03	PU-239/240	SCAQC-6744-LC1	2.04 ± 0.102	2.43 ± 0.583	119	1.00
SRW01	SR-90	SCAQC-6744-LC1	39.2 ± 0.901	39.4 ± 4.52	101	0.085

Laboratory Duplicate Sample (LD1) Evaluation

Method Number	Radionuclide	Laboratory Sample ID	Original Sample		Duplicate Sample		Difference Between	Ratio of the Difference
			Activity (pCi/g)	±	Activity (pCi/g)	±	Original Activity and Duplicate Sample Activity (F)	Between the Sample Activity and the Propagated Measurement at 1 σ (F/E)
ACW03	PU-238	SCAQC-6744-LD1	0.004	± 0.009	0.002	± 0.010	0.003	0.383
ACW03	PU-239/240	SCAQC-6744-LD1	0.006	± 0.014	0.004	± 0.009	0.002	0.230
SRW01	SR-90	SCAQC-6744-LD1	0.586	± 0.504	0.499	± 0.476	0.087	0.250

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Southeastern Environmental Laboratory

Radioanalytical Results

Quality Control Tracer Yield

Report Identification Number: S6744

Project Name: Allwest Remediation

Laboratory Code: SCA

<u>Laboratory Sample ID</u>	<u>Pu-242</u>
WR06-6744-01	74.89
WR06-6744-02	70.19
AWR06-6744-03	75.31
WR06-6744-04	82.89
WR06-6744-05	64.82
AWR06-6744-06	81.35
AWR06-6744-07	79.99
WR06-6744-08	74.46
WR06-6744-09	65.89
AWR06-6744-10	84.83
CAQC-6744-LC1	85.56
CAQC-6744-LD1	72.25
SCAQC-6744-PB	90.81
SCAQC-6744-PB1	90.81

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Radioanalytical Results

Quality Control Chemical Recovery

Report Identification Number: S6744

Project Name: Allwest Remediation

Laboratory Code: SCA

<u>Laboratory Sample ID</u>	<u>Sr-90</u>
AWR06-6744-01	83 47
AWR06-6744-02	81 82
AWR06-6744-03	89 26
AWR06-6744-04	84 30
AWR06-6744-05	82 64
AWR06-6744-06	91 74
AWR06-6744-07	89 26
AWR06-6744-08	85 12
AWR06-6744-09	82 64
AWR06-6744-10	87 60
SCAQC-6744-LC1	83 47
SCAQC-6744-LD1	83 47
SCAQC-6744-PB	86 78
SCAQC-6744-PB1	86 78



PARAGON ANALYTICS

225 Commerce Drive ♦ Fort Collins, CO 80524 ♦ (800) 443-1511 ♦ (970) 490-1511 ♦ FAX (970) 490-1522

March 31, 2006

Mr. Richard Scott
Allwest Remediation, Inc.
1201 N. Barsten Way
Anaheim CA 92806

Re: Paragon Workorder: 06-03-120
Client Project Name: Sterling
Client Project Number: 05-8513EI

Dear Mr. Scott:

Five soil samples were received from Allwest Remediation, Inc. on March 20, 2006. The samples were scheduled for Strontium-90 (pages 1-82) and Isotopic Plutonium (pages 1-82) analyses.

The results for these analyses are contained in the enclosed reports.

Thank you for your confidence in Paragon Analytics. Should you have any questions, please call.

Sincerely,

Paragon Analytics
Lance Steere
Project Manager

LRS/mh
Enclosure: Report

Paragon Analytics

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 0603120

Client Name: Allwest Remediation, Inc.

Client Project Name: Sterling

Client Project Number: 05-8513EI

Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
F4-N	0603120-1		SOIL	17-Mar-06	
B5-S	0603120-2		SOIL	17-Mar-06	
C10-W	0603120-3		SOIL	17-Mar-06	
N8-W	0603120-4		SOIL	17-Mar-06	
M10-W	0603120-5		SOIL	17-Mar-06	



DataChem Laboratories, Inc.
Field Chain-of-Custody Record

6603120

Client Name & Address: AllWest Remediation 1201 N BARSTEN WAY ANAHEIM CA 92806		Project No.: 05-8520-85135E1		Analysis Requested: No. of Containers: _____		Page _____ of _____	
Phone: 714.237.1201 FAX: 714.237.1202 e-mail: rscott@allwestrem.com		Project Name: Sterling		Sample for Matrix: _____		Remarks: _____	
Sampler Signature: _____ _____		Preservation Code: _____		Sample Matrix Code: _____		Requested Turn Around Time: <input type="checkbox"/> 48 Hours (Rush) <input type="checkbox"/> 7 Days <input type="checkbox"/> 21 Days <input type="checkbox"/> 72 Hours (Rush) <input checked="" type="checkbox"/> 14 Days <input type="checkbox"/> Other (Rush is email or fax date unless previously approved)	
Field Sample Number: E4-N B5-S C10-W N8-W M10-W		Date: 3/17/06		Archive for _____ Months: <input type="checkbox"/> Archive for _____ Months		Carrier/Airbill #: _____	
Possible Hazard Identification: <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Rad <input type="checkbox"/> Flammable <input type="checkbox"/> Poison <input type="checkbox"/> Unknown		Sample Disposal: <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab (a fee may be assessed if samples are retained longer than 3 months)		Relinquished by: (Signature) _____		Date: 3/20/06	
Relinquished by: (Signature) _____		Received by: (Signature) _____		Date: _____		Time: 0955	
Relinquished by: (Signature) _____		Received by: (Signature) _____		Date: _____		Time: _____	
Relinquished by: (Signature) _____		Received by: (Signature) _____		Date: _____		Time: _____	

Shippato:
 DataChem Laboratories, Inc.
 650 W. Lakeview Drive
 Safford, GA 31784
 Phone: (800) 355-3135
 Phone: (800) 266-7701
 FAX: (800) 266-6992
 www.datachem.com

CONDITION OF SAMPLE UPON RECEIPT FORM

Paragon Analytics

Client: AI/WCST

Workorder No: 0603120

Project Manager: LS

Initials: JLR Date: 3/20/06

1	Does this project require any special handling in addition to standard Paragon procedures?		YES	<input checked="" type="radio"/> NO
2	Are custody seals on shipping containers intact?	<input checked="" type="radio"/> NONE	YES	NO
3	Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4	Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5	Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6	Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7	Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8	Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9	Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10	Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11	Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12	Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13	Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14	Are all samples requiring no headspace (VOC, GRO, Rx CN/S, radon), headspace free? Size of bubble: ___ < green pea ___ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15	Were samples checked for and free from the presence of residual chlorine? (Applicable when PM has indicated samples are from a chlorinated water source; note if field preservation with sodium thiosulfate was not observed.)	<input checked="" type="radio"/> N/A	YES	NO
16	Were the samples shipped on ice?		YES	<input checked="" type="radio"/> NO
17	Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4 <input checked="" type="radio"/> <input checked="" type="radio"/> RAD ONLY		YES	NO
Cooler #: <u>1</u>				
Temperature (°C): <u>AMB</u>				
No. of custody seals on cooler: <u>0</u>				
External µR/hr reading: <u>13</u>				
Background µR/hr reading: <u>12</u>				
Were external µR/hr readings ≤ two times background and within DOI acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)				

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: [Signature] Date/Time: 3/20/06

Project Manager Signature / Date: [Signature] 3/20/06

*IR Gun #2: Oakton, SN 29922500201-0066

*IR Gun #4: Oakton, SN 2372220101-0002



Paragon Analytics

Radiochemistry Case Narrative

Strontium-90

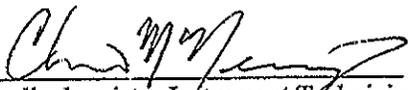
Allwest Remediation, Inc.

Sterling / 05-8513EI

Paragon WO 0603120

1. This report consists of the analytical results and supporting documentation for five soil samples received by Paragon on 3/20/2006.
2. These samples were prepared according to Paragon Analytics procedure SOP707R8.
3. These samples were analyzed for the presence of Strontium-90 according to Paragon Analytics procedure SOP724R8. The analyses were completed on 3/26/2006.
4. Total radiostrontium is reported as Strontium-90. The presence of other radioisotopes of strontium may cause positive bias in the measured strontium concentration.
5. The analysis results for these samples are reported on a 'dry weight' basis in units of pCi/gram.
6. Due to uncertainty associated with the ICP-AES determination of strontium concentration in the samples, the calculated yield for sample C10-W (PA ID 0603120-3) fell between 100% and 110%. To minimize the potential for low bias, results have been calculated conservatively assuming quantitative chemical yield (100%). The magnitude of the low bias is estimated to be less than 10% of the reported value and is acceptable according to the Paragon LQAP. This sample is identified with a "Y1" flag on the final reports.
7. No further anomalous situations were encountered during the preparation and analysis of these samples. All remaining quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.


Radiochemistry Instrument Technician

3/30/06
Date


Radiochemistry Final Data Review

3/30/06
Date

000001

1

PARAGON ANALYTICS
Radiochemistry Data Package

Section 1

**SAMPLE RESULTS
SUMMARY**

000002

Strontium-90 Analysis by GFPC Sample Results Summary

Client Name: Allwest Remediation, Inc.
 Client Project Name: Sterling
 Client Project Number: 05-8513E1

Laboratory Name: Paragon Analytix
 PAI Work Order: 0603120

Page: 1 of 1

Reported on: Tuesday, March 28, 2006
 9:28:41 AM

Lab Sample ID	Client Sample ID	Sample Type	Nuclide	Result +/- 2 s TPU	MDC	Units	Matrix	Prep Batch	Date Analyzed	Flags
0603120-1	F4-N	Sample	Sr-90	0.30 +/- 0.13	0.21	pCi/g	SOIL	SR060322-2	3/25/2006	LT
0603120-2	B5-S	Sample	Sr-90	0.038 +/- 0.099	0.217	pCi/g	SOIL	SR060322-2	3/25/2006	U
0603120-3	C10-W	Sample	Sr-90	0.043 +/- 0.093	0.202	pCi/g	SOIL	SR060322-2	3/25/2006	Y1,U
0603120-4	N8-W	Sample	Sr-90	0.35 +/- 0.14	0.21	pCi/g	SOIL	SR060322-2	3/25/2006	LT
0603120-5	M10-W	Sample	Sr-90	0.12 +/- 0.10	0.21	pCi/g	SOIL	SR060322-2	3/25/2006	U

Comments:

Data Package ID: SR0603120-1

Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

- Abbreviations:**
- TPU - Total Propagated Uncertainty (see PAI SOP 743)
 - MDC - Minimum Detectable Concentration (see PAI SOP 709)
 - BDL - Below Detection Limit

Date Printed: Tuesday, March 28, 2006

Paragon Analytix
 LIMS Version: 5.336A

000003

2

PARAGON ANALYTICS
Radiochemistry Data Package

Section 2

**QC RESULTS
SUMMARY**

000004

Strontium-90 Analysis by GFPC

PAI 724 Rev 8

Method Blank Results

Lab Name: Paragon Analytics

Work Order Number: 0603120

Client Name: Allwest Remediation, Inc

ClientProject ID: Sterling 05-8513E1

Lab ID: SR060322-2MB

Sample Matrix: SOIL

Prep SOP: PAI 707 Rev 8

Date Collected: 22-Mar-06

Date Prepared: 22-Mar-06

Date Analyzed: 25-Mar-06

Prep Batch: SR060322-2

QC Batch ID: SR060322-2-1

Run ID: SR060322-2A

Count Time: 150 minutes

Final Aliquot: 1.96 g

Result Units: pCi/g

File Name: SRA0325D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
10098-97-2	Sr-90	0.15 +/- 0.13	0.25	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
STRONTIUM	1022	909.1	ug	89.0	40 - 110 %	

Comments:

Qualifiers/Flags:

- Result is less than the sample specific MDC
- 1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed
- 2 - Chemical Yield outside default limits.
- Y - Result is less than Requested MDC greater than sample specific MDC

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

- Requested MDC not met
- Analyte concentration greater than MDC
- 3 - Analyte concentration greater than MDC but less than Requested MDC

Data Package ID: SR0603120-1

Strontium-90 Analysis by GFPC

PAI 724 Rev 8

Laboratory Control Sample(s)

Lab Name: Paragon Analytics
Work Order Number: 0603120
Client Name: Allwest Remediation, Inc
ClientProject ID: Sterling 05-8513EI

Lab ID: SR060322-2LCS

Sample Matrix: SOIL
Prep SOP: PAI 707 Rev 8
Date Collected: 22-Mar-06
Date Prepared: 22-Mar-06
Date Analyzed: 26-Mar-06

Prep Batch: SR060322-2
QCBatchID: SR060322-2-1
Run ID: SR060322-2A
Count Time: 150 minutes

Final Aliquot: 1.96 g
Result Units: pCi/g
File Name: SRA0326B

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
10098-97-2	Sr-90	5.5 +/- 1.3	0.2	5.72	95.4	75 - 125	P

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
STRONTIUM	1019	997.6	ug	97.9	40 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC
- LT - Result is less than Requested MDC greater than sample specific MDC
- Y1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed
- Y2 - Chemical Yield outside default limits
- L - LCS Recovery below lower control limit
- H - LCS Recovery above upper control limit
- P - LCS Recovery within control limits
- M - The requested MDC was not met
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)

Data Package ID: SR0603120-1

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Paragon Analytics
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Strontium-90 Analysis by GFPC

PAI 724 Rev 8

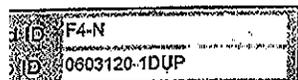
Duplicate Sample Results (DER)

Lab Name: Paragon Analytics

Order Number: 0603120

Client Name: Allwest Remediation, Inc

Client Project ID: Sterling 05-8513EI



Sample Matrix: SOIL
 Prep SOP: PAI 707 Rev 8
 Date Collected: 17-Mar-06
 Date Prepared: 22-Mar-06
 Date Analyzed: 25-Mar-06

Prep Batch: SR060322-2
 QCBatchID: SR060322-2-1
 Run ID: SR060322-2A
 Count Time: 150 minutes
 Report Basis: Dry Weight

Final Aliquot: 1.98 g
 Prep Basis: Dry Weight
 Moisture(%): NA
 Result Units: pCi/g
 File Name: SRA0325D

ASNO	Analyte	Sample Result +/- 2s TPU	Duplicate Result +/- 2s TPU	DER	Control Limit	Lab Qualifiers
98-97-2	Sr-90	0.30 +/- 0.13	0.07 +/- 0.10	1.36	2.13	U

Comments:

to Qualifiers/Flags:
 : it is less than the sample specific MDC
 : Chemical Yield is in control at 100-110% Quantitative yield is assumed
 : Chemical Yield outside default limits
 : it is greater than Warning Limit of 1.42
 : it is greater than Control Limit of 2.13
 : it is less than Request MDC greater than sample specific MDC
 : Requested MDC not met
 : requested MDC was not met, but the reported activity is greater than the reported MDC
 : Recovery below lower control limit
 : Recovery above upper control limit
 : Matrix Spike Recovery within control limits
 : Spike Recovery outside control limits

Abbreviations:
 TPU - Total Propagated Uncertainty (see PAI SOP 743)
 DER - Duplicate Error Ratio (see PAI SOP 715)
 BDL - Below Detection Limit
 NR - Not Reported

Package ID: SR0603120-1

Strontium-90 Analysis by GFPC

PAI 724 Rev 8
Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0603120
Client Name: Allwest Remediation, Inc
Client Project ID: Sterling 05-8513E1

Field ID: F4-N
Lab ID: 0603120-1

Sample Matrix: SOIL
Prep SOP: PAI 707 Rev 8
Date Collected: 17-Mar-06
Date Prepared: 22-Mar-06
Date Analyzed: 25-Mar-06

Prep Batch: SR060322-2
QCBatchID: SR060322-2-1
Run ID: SR060322-2A
Count Time: 150 minutes
Report Basis: Dry Weight

Final Aliquot: 2.02 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: SRA0325D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
10098-97-2	Sr-90	0.30 +/- 0.13	0.21	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
STRONTIUM	1070	1041	ug	97.3	40 - 110 %	

Comments:

Qualifiers/Flags:

- J - Result is less than the sample specific MDC
- *1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed
- *2 - Chemical Yield outside default limits
- T - Result is less than Requested MDC greater than sample specific MDC
- 13 - The requested MDC was not met, but the reported activity is greater than the reported MDC
- 1 - The requested MDC was not met

Abbreviations:

- PU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- DL - Below Detection Limit

Data Package ID: SR0603120-1

Strontium-90 Analysis by GFPC

PAI 724 Rev 8

Sample Duplicate Results

Lab Name: Paragon Analytics
Work Order Number: 0603120
Client Name: Allwest Remediation, Inc.
ClientProject ID: Sterling 05-8513EI

Field ID: F4-N
Lab ID: 0603120-1DUP

Sample Matrix: SOIL
Prep SOP: PAI 707 Rev 8
Date Collected: 17-Mar-06
Date Prepared: 22-Mar-06
Date Analyzed: 25-Mar-06

Prep Batch: SR060322-2
QCBatchID: SR060322-2-1
Run ID: SR060322-2A
Count Time: 150 minutes
Report Basis: Dry Weight

Final Aliquot: 1.98 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: SRA0325D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
10098-97-2	Sr-90	0.07 +/- 0.10	0.22	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
STRONTIUM	1081	1024	ug	94.7	40 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC
- Y1 - Chemical Yield is in control at 100-110% Quantitative yield is assumed
- Y2 - Chemical Yield outside default limits
- LT - Result is less than Requested MDC greater than sample specific MDC
- M - The requested MDC was not met
- M3 - The requested MDC was not met but the reported activity is greater than the reported MDC
- W - DER is greater than Warning Limit of 1.42
- D - DER is greater than Control Limit of 2.13

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BOL - Below Detection Limit

Data Package ID: SR0603120-1

Strontium-90 Analysis by GFPC

PAI 724 Rev 8
Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0603120
Client Name: Allwest Remediation, Inc
ClientProject ID: Sterling 05-8513EI

Field ID: B5-S
Lab ID: 0603120-2

Sample Matrix: SOIL
Prep SOP: PAI 707 Rev 8
Date Collected: 17-Mar-06
Date Prepared: 22-Mar-06
Date Analyzed: 25-Mar-06

Prep Batch: SR060322-2
QCBatchID: SR060322-2-1
Run ID: SR060322-2A
Count Time: 150 minutes
Report Basis: Dry Weight

Final Aliquot: 2.04 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: SRA0325D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
10098-97-2	Sr-90	0.038 +/- 0.099	0.217	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
STRONTIUM	1170	1133	ug	96.8	40 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC
- Y1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits
- LT - Result is less than Requested MDC greater than sample specific MDC
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC
- V - The requested MDC was not met

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- DL - Below Detection Limit

Data Package ID: SR0603120-1

Strontium-90 Analysis by GFPC

PAI 724 Rev 8
Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0603120
Client Name: Allwest Remediation, Inc
Client Project ID: Sterling 05-8513E1

Field ID	C10-W
Lab ID	0603120-3

Sample Matrix: SOIL
Prep SOP: PAI 707 Rev 8
Date Collected: 17-Mar-06
Date Prepared: 22-Mar-06
Date Analyzed: 25-Mar-06

Prep Batch: SR060322-2
QCBatchID: SR060322-2-1
Run ID: SR060322-2A
Count Time: 150 minutes
Report Basis: Dry Weight

Final Aliquot: 197 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: SRA0325D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
10098-97-2	Sr-90	0.043 +/- 0.093	0.202	Y1,U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
STRONTIUM	1071	1125	ug	105	40 - 110 %	Y1

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed
- Y2 - Chemical Yield outside default limits.
- LT - Result is less than Requested MDC greater than sample specific MDC
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC
- M - The requested MDC was not met

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Data Package ID: SR0603120-1

Date Printed: Tuesday, March 28, 2006

Paragon Analytics
LIMS Version: 5.335A

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Strontium-90 Analysis by GFPC

PAI 724 Rev 8
Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0603120
Client Name: Allwest Remediation, Inc
ClientProject ID: Sterling 05-8513EI

Field ID	N8-W
Lab ID	0603120-4

Sample Matrix: SOIL
Prep SOP: PAI 707 Rev 8
Date Collected: 17-Mar-06
Date Prepared: 22-Mar-06
Date Analyzed: 25-Mar-06

Prep Batch: SR060322-2
QCBatchID: SR060322-2-1
Run ID: SR060322-2A
Count Time: 150 minutes
Report Basis: Dry Weight

Final Aliquot: 2.03 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: SRA0325D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
10098-97-2	Sr-90	0.35 +/- 0.14	0.21	LT

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
STRONTIUM	1064	1033	ug	97.1	40 - 110 %	

Comments:

Qualifiers/Flags:

- Result is less than the sample specific MDC
- 1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed
- 2 - Chemical Yield outside default limits.
- 3 - Result is less than Requested MDC greater than sample specific MDC
- 4 - The requested MDC was not met, but the reported activity is greater than the reported MDC
- The requested MDC was not met

Abbreviations:

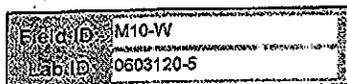
- PU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- DL - Below Detection Limit

Data Package ID: SR0603120-1

Strontium-90 Analysis by GFPC

PAI 724 Rev 8
Sample Results

Lab Name: Paragon Analytics
Work Order Number: 0603120
Client Name: Allwest Remediation, Inc
Client Project ID: Sterling 05-8513EI



Sample Matrix: SOIL
Prep SOP: PAI 707 Rev 8
Date Collected: 17-Mar-06
Date Prepared: 22-Mar-06
Date Analyzed: 25-Mar-06
Prep Batch: SR060322-2
QC Batch ID: SR060322-2-1
Run ID: SR060322-2A
Count Time: 150 minutes
Report Basis: Dry Weight
Final Aliquot: 2.00 g
Prep Basis: Dry Weight
Moisture(%): NA
Result Units: pCi/g
File Name: SRA0325D

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Lab Qualifier
10098-97-2	Sr-90	0.12 +/- 0.10	0.21	U

Chemical Yield Summary

Carrier/Tracer	Amount Added	Result	Units	Yield	Control Limits	Flag
STRONTIUM	1117	1088	ug	97.5	40 - 110 %	

Comments:

Qualifiers/Flags:

- U - Result is less than the sample specific MDC
- Y1 - Chemical Yield is in control at 100-110% Quantitative Yield is assumed
- Y2 - Chemical Yield outside default limits.
- LT - Result is less than Requested MDC greater than sample specific MDC
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC
- M - The requested MDC was not met

Abbreviations:

- TPU - Total Propagated Uncertainty (see PAI SOP 743)
- MDC - Minimum Detectable Concentration (see PAI SOP 709)
- BDL - Below Detection Limit

Data Package ID: SR0603120-1